GREE
Change for Life

Service Manual

MODELS: GWH09RA-K3DNA1A
GWH09RA-K3DNA1B
GWH09RA-K3DNA4B
GWH12RB-K3DNA1B
GWH12RB-K3DNA2B
GWH12RB-K3DNA4B
(Refrigerant R410A)

GREE ELECTRIC APPLIANCES,INC.OF ZHUHAI

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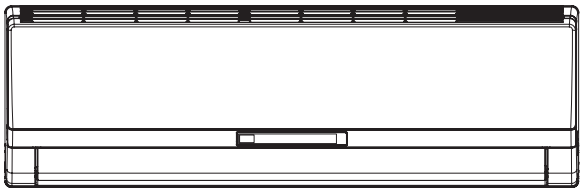
Summary and Features

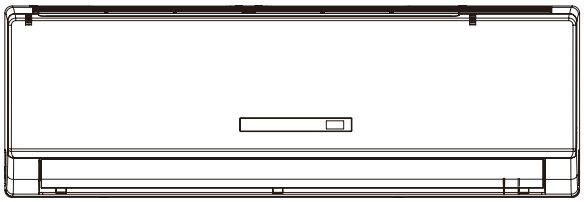
Indoor Unit

GWH09RA-K3DNA1A/I
GWH09RA-K3DNA1B/I
GWH12RB-K3DNA1B/I



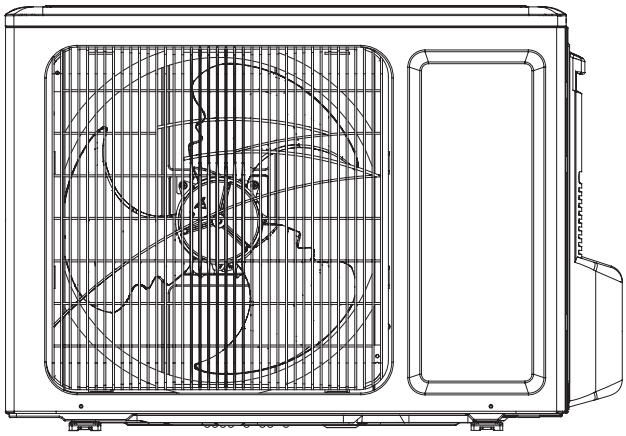
GWH12RB-K3DNA2B/I

GWH09RA-K3DNA4B/I
GWH12RB-K3DNA4B/I



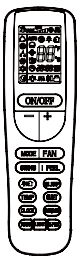
Outdoor Unit

GWH09RA-K3DNA1A/O
GWH09MA-K3DNA3B/O
GWH12MB-K3DNA3B/O



Remote Controller

YAA1FB



1. Safety Precautions

Installing, starting up, and servicing air conditioner can be hazardous due to system pressure, electrical components, and equipment location, etc.

Only trained, qualified installers and service personnel are allowed to install, start-up, and service this equipment. Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When handling the equipment, observe precautions in the manual and on tags, stickers, and labels attached to the equipment. Follow all safety codes. Wear safety glasses andwork gloves. Keep quenching cloth and fire extinguisher nearby when brazing.

Read the instructions thoroughly and follow all warnings or cautions in literature and attached to the unit. Consult local building codes and current editions of national as well as local electrical codes.

Recognize the following safety information:

⚠ Warning	Incorrect handling could result in personal injury or death.
⚠ Caution	Incorrect handling may result in minor injury,or damage to product or property.

⚠ Warning

All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

- Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. There may be more than 1 disconnect switch. Lock out and tag switch with a suitable warning label.
- Never supply power to the unit unless all wiring and tubing are completed, reconnected and checked.
- This system adopts highly dangerous electrical voltage. Incorrect connection or inadequate grounding can cause personal injury or death. Stick to the wiring diagram and all the instructions when wiring.
- Have the unit adequately grounded in accordance with local electrical codes.
- Have all wiring connected tightly. Loose connection may lead to overheating and a possible fire hazard.

All installation or repair work shall be performed by your dealer or a specialized subcontractor as there is the risk of fire, electric shock, explosion or injury.

- Make sure the outdoor unit is installed on a stable, level surface with no accumulation of snow, leaves, or trash beside.
- Make sure the ceiling/wall is strong enough to bear the weight of the unit.
- Make sure the noise of the outdoor unit does not disturb neighbors.
- Follow all the installation instructions to minimize the risk of damage from earthquakes, typhoons or strong winds.
- Avoid contact between refrigerant and fire as it generates poisonous gas.
- Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture and other hazards.
- Make sure no refrigerant gas is leaking out when installation is completed.
- Should there be refrigerant leakage, the density of refrigerant in the air shall in no way exceed its limited value, or it may lead to explosion.
- Keep your fingers and clothing away from any moving parts.
- Clear the site after installation. Make sure no foreign objects are left in the unit.
- Always ensure effective grounding for the unit.

⚠ Caution

- Never install the unit in a place where a combustible gas might leak, or it may lead to fire or explosion.
- Make a proper provision against noise when the unit is installed at a telecommunication center or hospital.
- Provide an electric leak breaker when it is installed in a watery place.
- Never wash the unit with water.
- Handle unit transportation with care. The unit should not be carried by only one person if it is more than 20kg.
- Never touch the heat exchanger fins with bare hands.
- Never touch the compressor or refrigerant piping without wearing glove.
- Do not have the unit operate without air filter.
- Should any emergency occur, stop the unit and disconnect the power immediately.
- Properly insulate any tubing running inside the room to prevent the water from damaging the wall.

2. Specifications

Model			GWH09RA-K3DNA1A	GWH09RA-K3DNA1B
Product Code			CB14400023	CB144000901
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Indoor	Indoor
Cooling Capacity(Min~Max)		W	2500(500~3200)	2500(550~3200)
Heating Capacity(Min~Max)		W	2750(800~3500)	2800(800~3600)
Cooling Power Input(Min~Max)		W	623(280~1200)	770(250~1360)
Heating Power Input(Min~Max)		W	669(310~1550)	775(200~1400)
Cooling Current Input		A	2.76	3.42
Heating Current Input		A	2.97	3.44
Rated Input		W	1550	1400
Rated Current		A	5.88	9
Air Flow Volume (SH/H/M/L/SL)		m^3/h	600/500/400/300/-	550/500/400/300/-
Dehumidifying Volume		L/h	0.8	0.8
EER		W/W	4.01	3.24
COP		W/W	4.11	3.61
SEER			/	/
HSPF			/	/
Application Area		m^2	12-18	12-18
Indoor Unit	Indoor Unit Model		GWH09RA-K3DNA1A/I	GWH09RA-K3DNA1B/I
	Indoor Unit Product Code		CB144N0023	CB144N00900
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ92X645	Φ85X596
	Cooling Speed (SH/H/M/L/SL)	r/min	1260/1070/900/730/-	1260/1050/900/690/-
	Heating Speed (SH/H/M/L/SL)	r/min	1280/1050/980/920/-	1320/1200/1000/910/-
	Fan Motor Power Output	W	20	10
	Fan Motor RLA	A	0.1	0.144
	Fan Motor Capacitor	μF	1	1
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.4	2-1.5
	Evaporator Coil Length (LXDXW)	mm	636X25.4X267	582X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	41/36/33/30/-	40/37/35/32/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	51/46/43/40/-	50/47/45/42/-
	Dimension (WXHXD)	mm	845X275X180	794X264X186
	Dimension of Carton Box (LXWXH)	mm	923X264X356	870X255X350
	Dimension of Package (LXWXH)	mm	926X267X267	873X258X258
	Net Weight	kg	10	9
	Gross Weight	kg	13	12

Outdoor Unit	Outdoor Unit Model		GWH09RA-K3DNA1A/O	GWH09MA-K3DNA3B/O
	Outdoor Unit Product Code		CB144W0021	CB171W0191
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-B096ZC190(GREE)	QXA-B096ZC190(GREE)
	Compressor Oil		68EP	68EP
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	16.5	16.5
	Compressor RLA	A	4.9	4.9
	Compressor Power Input	W	780	950
	Compressor Overload Protector		INT11L-6233	INT11L-6233
	Throttling Method		Capillary	Capillary
	Set Temperature Range	ºC	16~30	16~30
	Cooling Operation Ambient Temperature Range	ºC	18~43	18~43
	Heating Operation Ambient Temperature Range	ºC	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ9.52
	Condenser Rows-fin Gap	mm	2-1.4	1-1.4
	Condenser Coil Length (LXDXW)	mm	679X38.1X506	704X22X508
	Fan Motor Speed	rpm	830±20	830±30
	Fan Motor Power Output	W	30	30
	Fan Motor RLA	A	0.3	0.236
	Fan Motor Capacitor	μF	/	2.5
	Outdoor Unit Air Flow Volume	m^3/h	1600	1600
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	50/-/-	50/-/-
	Sound Power Level (H/M/L)	dB (A)	60/-/-	60/-/-
	Dimension (WXHXD)	mm	776X540X320	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580	848X360X580
	Dimension of Package (LXWXH)	mm	851X363X595	851X363X595
	Net Weight	kg	32	31
	Gross Weight	kg	36	35
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	0.9	0.73
Connection Pipe	Connection Pipe Length	m	5	5
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	15	15

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Model			GWH09RA-K3DNA4B
Product Code			CB303000602
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity		W	2500
Heating Capacity		W	2800
Cooling Power Input		W	770
Heating Power Input		W	775
Cooling Current Input		A	3.42
Heating Current Input		A	3.44
Rated Input		W	1400
Rated Current		A	9
Air Flow Volume(SH/H/M/L/SL)		m^3/h	550/500/400/300/-
Dehumidifying Volume		L/h	0.8
EER		W/W	3.24
COP		W/W	3.61
SEER			/
HSPF			/
Application Area		m^2	12-18
Indoor Unit	Indoor Unit Model		GWH09RA-K3DNA4B/I
	Indoor Unit Product Code		CB303N00600
	Fan Type		Cross-flow
	Fan Diameter Length(DXL)	mm	Φ85X596
	Cooling Speed	r/min	1260/1050/900/690/-
	Heating Speed	r/min	1320/1200/1000/910/-
	Fan Motor Power Output	W	10
	Fan Motor RLA	A	0.144
	Fan Motor Capacitor	μF	1
	Heater Power Input	W	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.5
	Evaporator Coil Length (LXDXW)	mm	582X25.4X267
	Swing Motor Model		MP24AA
	Swing Motor Power Output	W	1.5
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	40/37/35/32/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	50/47/45/42/-
	Dimension (WXHXD)	mm	794X264X186
	Dimension of Carton Box (LXWXH)	mm	870X255X350
	Dimension of Package(LXWXH)	mm	873X258X365
	Net Weight	kg	9
	Gross Weight	kg	12

Outdoor Unit	Outdoor Unit Model		GWH09MA-K3DNA3B/O
	Outdoor Unit Product Code		CB171W0192
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-B096ZC190(GREE)
	Compressor Oil		68EP
	Compressor Type		Rotary
	Compressor LRA.	A	16.5
	Compressor RLA	A	4.9
	Compressor Power Input	W	950
	Compressor Overload Protector		INT11L-6233
	Throttling Method		Capillary
	Set Temperature Range	°C	16~30
	Cooling Operation Ambient Temperature Range	°C	-15~43
	Heating Operation Ambient Temperature Range	°C	-7~24
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ9.52
	Condenser Rows-fin Gap	mm	1-1.4
	Condenser Coil Length (LXDXW)	mm	704X22X508
	Fan Motor Speed	rpm	830±20
	Fan Motor Power Output	W	30
	Fan Motor RLA	A	0.236
	Fan Motor Capacitor	μF	2.5
	Outdoor Unit Air Flow Volume	m^3/h	1600
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ400
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	50/-/-
	Sound Power Level (H/M/L)	dB (A)	60/-/-
	Dimension (WXHXD)	mm	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580
	Dimension of Package(LXWXH)	mm	851X363X595
	Net Weight	kg	31
	Gross Weight	kg	35
	Refrigerant		R410A
	Refrigerant Charge	kg	0.73
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	mm	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52
	Max Distance Height	m	10
	Max Distance Length	m	15

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Model			GWH12RB-K3DNA1B	GWH12RB-K3DNA2B
Product Code			CB144001002	CB301000903
Power Supply	Rated Voltage	V~	220-240	220-240
	Rated Frequency	Hz	50	50
	Phases		1	1
Power Supply Mode			Indoor	Indoor
Cooling Capacity(Min~Max)		W	3500(510~3900)	3500
Heating Capacity(Min~Max)		W	3900(880~4400)	3900
Cooling Power Input(Min~Max)		W	1080(230~1300)	1080
Heating Power Input(Min~Max)		W	1080(230~1300)	1080
Cooling Current Input		A	4.791	4.79
Heating Current Input		A	4.791	4.79
Rated Input		W	1500	1500
Rated Current		A	9	9
Air Flow Volume(SH/H/M/L/SL)		m^3/h	600/500/400/300/-	600/500/400/300/-
Dehumidifying Volume		L/h	1.4	1.4
EER		W/W	3.241	3.24
COP		W/W	3.611	3.61
SEER			/	/
HSPF			/	/
Application Area		m^2	16-24	16-24
Indoor Unit	Indoor Unit Model		GWH12RB-K3DNA1B/I	GWH12RB-K3DNA2B/I
	Indoor Unit Product Code		CB144N01000	CB301N00900
	Fan Type		Cross-flow	Cross-flow
	Fan Diameter Length(DXL)	mm	Φ92X645	Φ92X645
	Cooling Speed (SH/H/M/L/SL)	r/min	1290/1070/900/690/-	1290/1070/900/690/-
	Heating Speed (SH/H/M/L/SL)	r/min	1280/1050/980/920/-	1280/1050/980/920/-
	Fan Motor Power Output	W	20	20
	Fan Motor RLA	A	0.1	0.1
	Fan Motor Capacitor	μF	1	1
	Evaporator Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7	Φ7
	Evaporator Row-fin Gap	mm	2-1.4	2-1.4
	Evaporator Coil Length (LXDXW)	mm	636X25.4X267	636X25.4X267
	Swing Motor Model		MP24AA	MP24AA
	Swing Motor Power Output	W	1.5	1.5
	Fuse Current	A	3.15	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	42/39/36/33/-	42/39/36/33/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	52/49/46/43/-	52/49/36/33/-
	Dimension (WXHXD)	mm	845X274X189	845X274X189
	Dimension of Carton Box (LXWXH)	mm	923X264X356	923X264X356
	Dimension of Package (LXWXH)	mm	926X267X371	926X267X371
	Net Weight	kg	11	11
	Gross Weight	kg	14	14

Outdoor Unit	Outdoor Unit Model		GWH12MB-K3DNA3B/O	GWH12MB-K3DNA3B/O
	Outdoor Unit Product Code		CB171W0212	CB171W0213
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.	ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-B096ZC190(GREE)	QXA-B096ZC190(GREE)
	Compressor Oil		68EP	68EP
	Compressor Type		Rotary	Rotary
	Compressor LRA.	A	16.5	16.5
	Compressor RLA	A	4.9	4.9
	Compressor Power Input	W	950	950
	Compressor Overload Protector		INT11L-6233	INT11L-6233
	Throttling Method		Capillary	Capillary
	Set Temperature Range	ºC	16~30	16~30
	Cooling Operation Ambient Temperature Range	ºC	18~43	-15~43
	Heating Operation Ambient Temperature Range	ºC	-7~24	-7~24
	Condenser Form		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7	Φ7
	Condenser Rows-fin Gap	mm	2-1.4	2-1.4
	Condenser Coil Length (LXDXW)	mm	695X38.1X506	695X38.1X506
	Fan Motor Speed	rpm	830±30	830±20
	Fan Motor Power Output	W	20	20
	Fan Motor RLA	A	0.24	0.236
	Fan Motor Capacitor	μF	2.5	2.5
	Outdoor Unit Air Flow Volume	m^3/h	1600	1600
	Fan Type		Axial-flow	Axial-flow
	Fan Diameter	mm	Φ400	Φ400
	Defrosting Method		Automatic Defrosting	Automatic Defrosting
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5	2.5
	Sound Pressure Level (H/M/L)	dB (A)	52/-/-	52/-/-
	Sound Power Level (H/M/L)	dB (A)	62/-/-	62/-/-
	Dimension (WXHXD)	mm	776X540X320	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580	848X360X580
	Dimension of Package (LXWXH)	mm	851X363X595	851X363X595
	Net Weight	kg	32	32
	Gross Weight	kg	36	36
	Refrigerant		R410A	R410A
	Refrigerant Charge	kg	0.95	0.95
Connection Pipe	Connection Pipe Length	m	5	5
	Connection Pipe Gas Additional Charge	g/m	20	20
	Outer Diameter Liquid Pipe	mm	Φ6	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52	Φ9.52
	Max Distance Height	m	10	10
	Max Distance Length	m	20	20

The above data is subject to change without notice. Please refer to the nameplate of the unit.

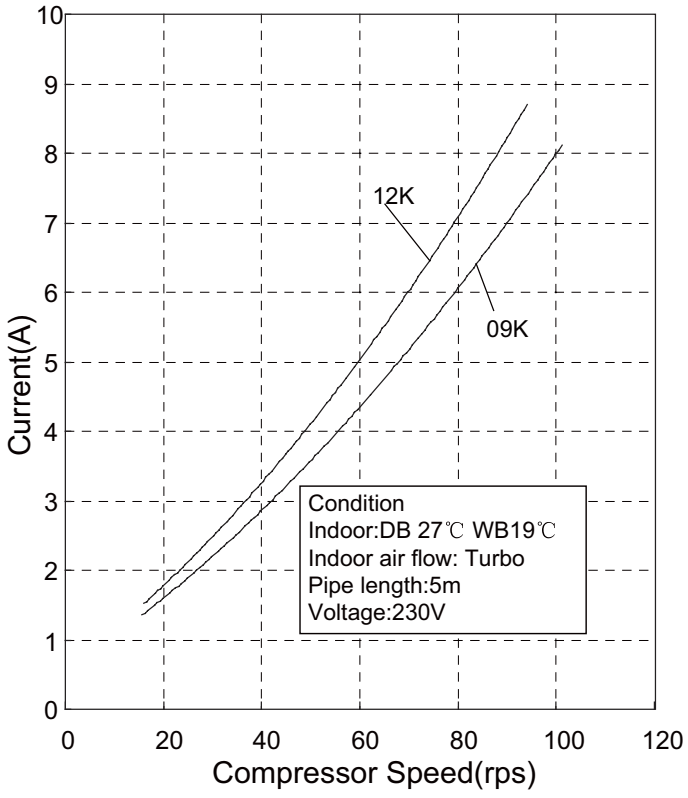
Model			GWH12RB-K3DNA4B
Product Code			CB303000503
Power Supply	Rated Voltage	V~	220-240
	Rated Frequency	Hz	50
	Phases		1
Power Supply Mode			Indoor
Cooling Capacity		W	3500
Heating Capacity		W	3900
Cooling Power Input		W	1080
Heating Power Input		W	1080
Cooling Current Input		A	4.79
Heating Current Input		A	4.79
Rated Input		W	1500
Rated Current		A	9
Air Flow Volume (SH/H/M/L/SL)		m^3/h	600/500/400/300/-
Dehumidifying Volume		L/h	1.4
EER		W/W	3.24
COP		W/W	3.61
SEER			/
HSPF			/
Application Area		m^2	16-24
Indoor Unit	Indoor Unit Model		GWH12RB-K3DNA4B/I
	Indoor Unit Product Code		CB303N00500
	Fan Type		Cross-flow
	Fan Diameter Length(DXL)	mm	Φ92X645
	Cooling Speed (SH/H/M/L/SL)	r/min	1290/1070/900/690/-
	Heating Speed (SH/H/M/L/SL)	r/min	1280/1050/980/920/-
	Fan Motor Power Output	W	20
	Fan Motor RLA	A	0.1
	Fan Motor Capacitor	μF	1
	Heater Power Input	W	/
	Evaporator Form		Aluminum Fin-copper Tube
	Evaporator Pipe Diameter	mm	Φ7
	Evaporator Row-fin Gap	mm	2-1.4
	Evaporator Coil Length (LXDXW)	mm	636X25.4X267
	Swing Motor Model		MP24AA
	Swing Motor Power Output	W	1.5
	Fuse Current	A	3.15
	Sound Pressure Level (SH/H/M/L/SL)	dB (A)	42/39/36/33/-
	Sound Power Level (SH/H/M/L/SL)	dB (A)	52/49/36/33/-
	Dimension (WXHXD)	mm	845X274X189
	Dimension of Carton Box (LXWXH)	mm	923X264X356
	Dimension of Package(LXWXH)	mm	926X267X371
	Net Weight	kg	11
	Gross Weight	kg	14

Outdoor Unit	Outdoor Unit Model		GWH12MB-K3DNA3B/O
	Outdoor Unit Product Code		CB171W0213
	Compressor Manufacturer		ZHUHAI LANDA COMPRESSOR CO., LTD.
	Compressor Model		QXA-B096ZC190(GREE)
	Compressor Oil		68EP
	Compressor Type		Rotary
	Compressor LRA.	A	16.5
	Compressor RLA	A	4.9
	Compressor Power Input	W	950
	Compressor Overload Protector		INT11L-6233
	Throttling Method		Capillary
	Set Temperature Range	°C	16~30
	Cooling Operation Ambient Temperature Range	°C	-15~43
	Heating Operation Ambient Temperature Range	°C	-7~24
	Condenser Form		Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	Φ7
	Condenser Rows-fin Gap	mm	2-1.4
	Condenser Coil Length (LXDXW)	mm	695X38.1X506
	Fan Motor Speed	rpm	830±30
	Fan Motor Power Output	W	20
	Fan Motor RLA	A	0.236
	Fan Motor Capacitor	μF	2.5
	Outdoor Unit Air Flow Volume	m^3/h	1600
	Fan Type		Axial-flow
	Fan Diameter	mm	Φ400
	Defrosting Method		Automatic Defrosting
	Climate Type		T1
	Isolation		I
	Moisture Protection		IP24
	Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
	Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
	Sound Pressure Level (H/M/L)	dB (A)	52/-/-
	Sound Power Level (H/M/L)	dB (A)	62/-/-
	Dimension (WXHXD)	mm	776X540X320
	Dimension of Carton Box (LXWXH)	mm	848X360X580
	Dimension of Package(LXWXH)	mm	851X363X595
	Net Weight	kg	32
	Gross Weight	kg	36
	Refrigerant		R410A
	Refrigerant Charge	kg	0.95
Connection Pipe	Connection Pipe Length	m	5
	Connection Pipe Gas Additional Charge	g/m	20
	Outer Diameter Liquid Pipe	mm	Φ6
	Outer Diameter Gas Pipe	mm	Φ9.52
	Max Distance Height	m	10
	Max Distance Length	m	20

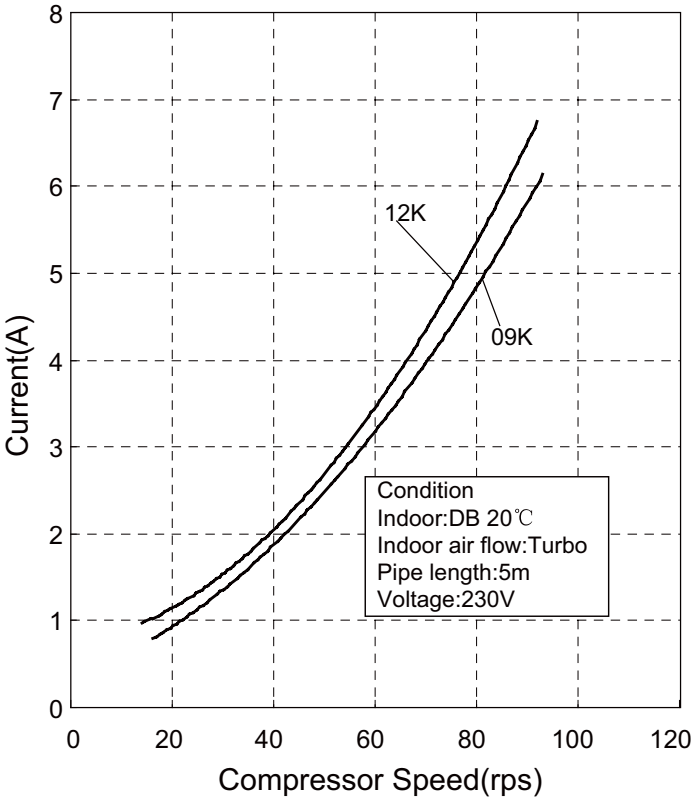
The above data is subject to change without notice. Please refer to the nameplate of the unit.

2.2 Operation Characteristic Curve

Cooling

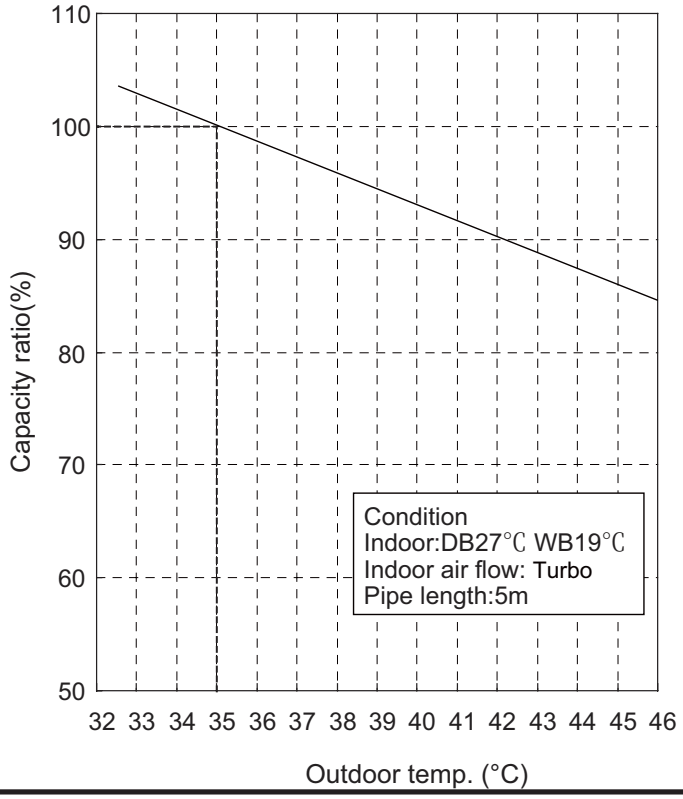


Heating

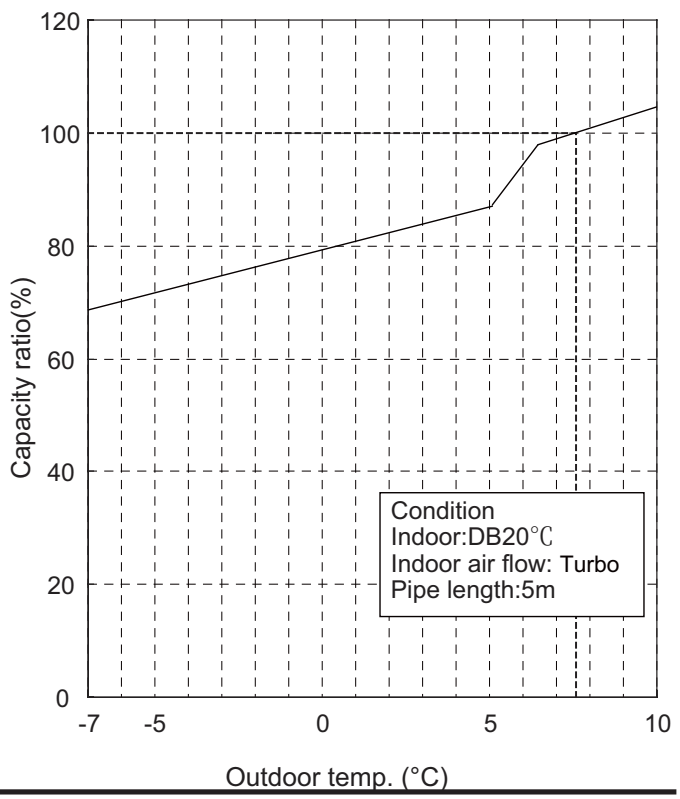


2.3 Capacity Variation Ratio According to Temperature

Cooling



Heating



2.4 Operation Data

Cooling

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode(rpm)	Compressor revolution (Hz)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
27/19	35/24	09K	0.85~1.0	in:8~11 out:11~14	in:50~80 out:37~43	Turbo	830	49
		12K				Turbo	900	68

Heating

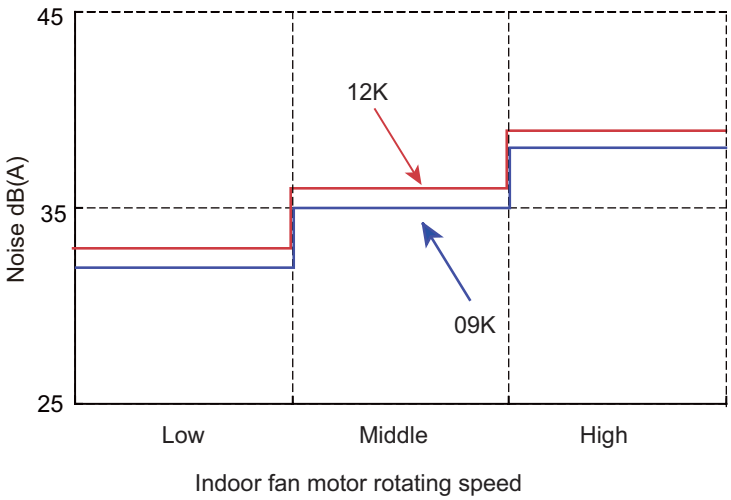
Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode(rpm)	Compressor revolution (Hz)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
20/-	7/6	09K	2.5~3.0	in:50~80 out:37~43	in:1~3 out:2~5	Turbo	830	54
		12K				Turbo	900	71

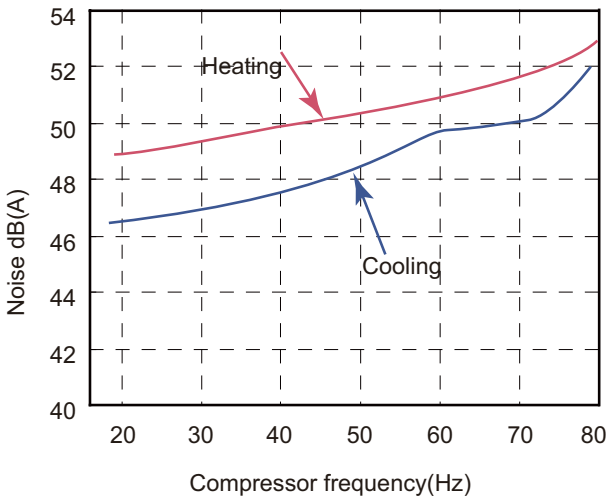
T1: Inlet and outlet pipe temperature of evaporator
T2: Inlet and outlet pipe temperature of condenser
P: Pressure of air pipe connecting indoor and outdoor units

NOTES :
(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)
(2) Connecting piping condition : 5 m

2.5 Noise Criteria Curve Tables for Both Models

Indoor side noise when blowing

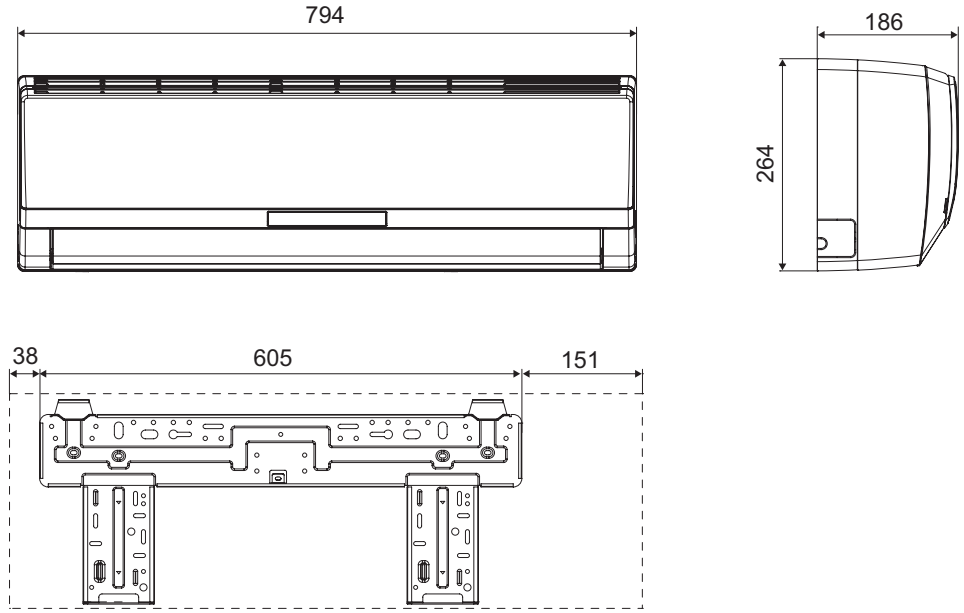




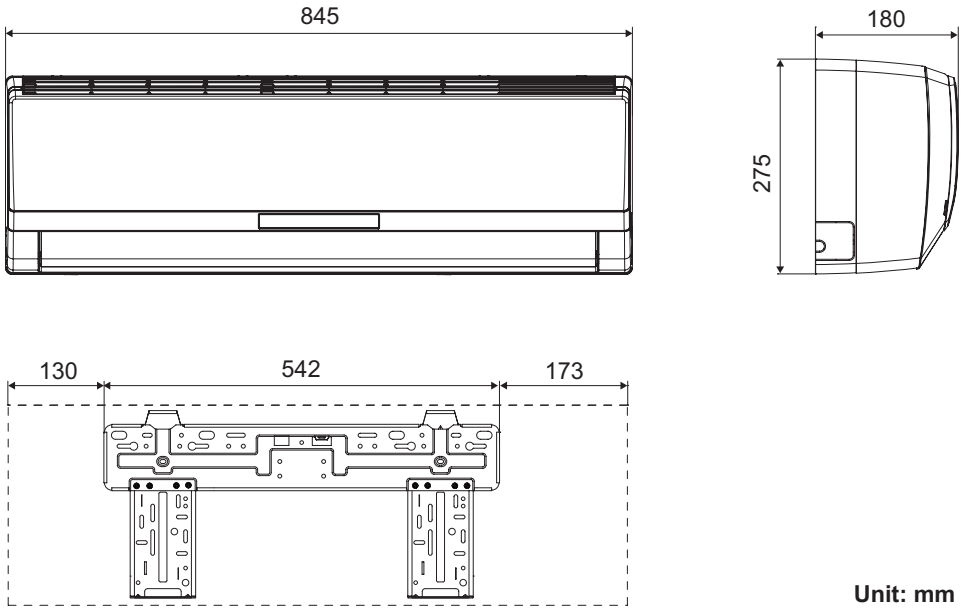
3. Construction Views

3.1 Indoor Unit

GWH09RA-K3DNA1B/I, GWH09RA-K3DNA4B/I

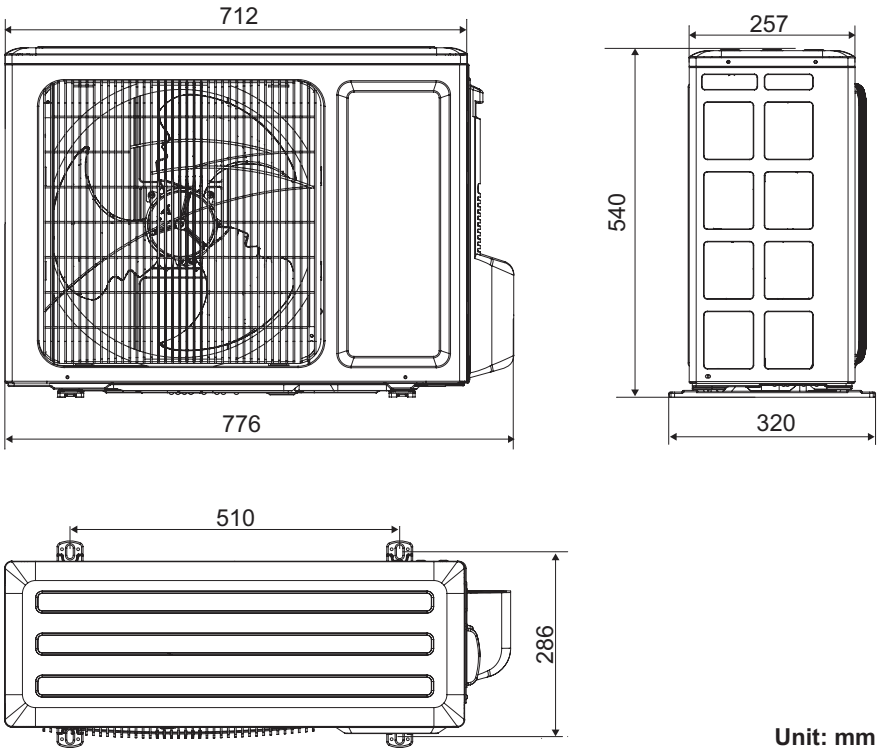


GWH09RA-K3DNA1A/I, GWH12RB-K3DNA1B/I,
GWH12RB-K3DNA2B/I, GWH12RB-K3DNA4B/I



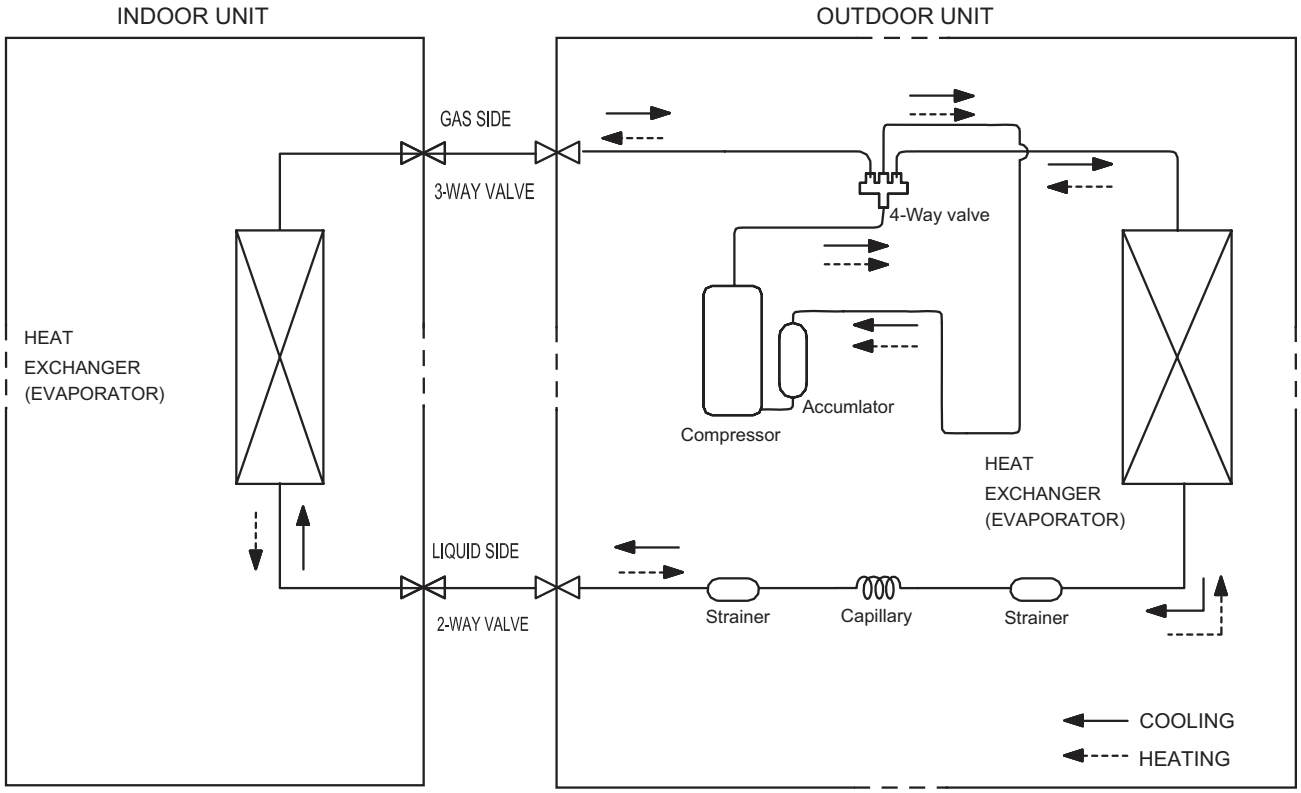
Unit: mm

3.2 Outdoor Unit



Unit: mm

4. Refrigerant System Diagram



Refrigerant pipe diameter

Liquid :1/4" (6 mm)

Gas : 3/8" (9.52 mm)

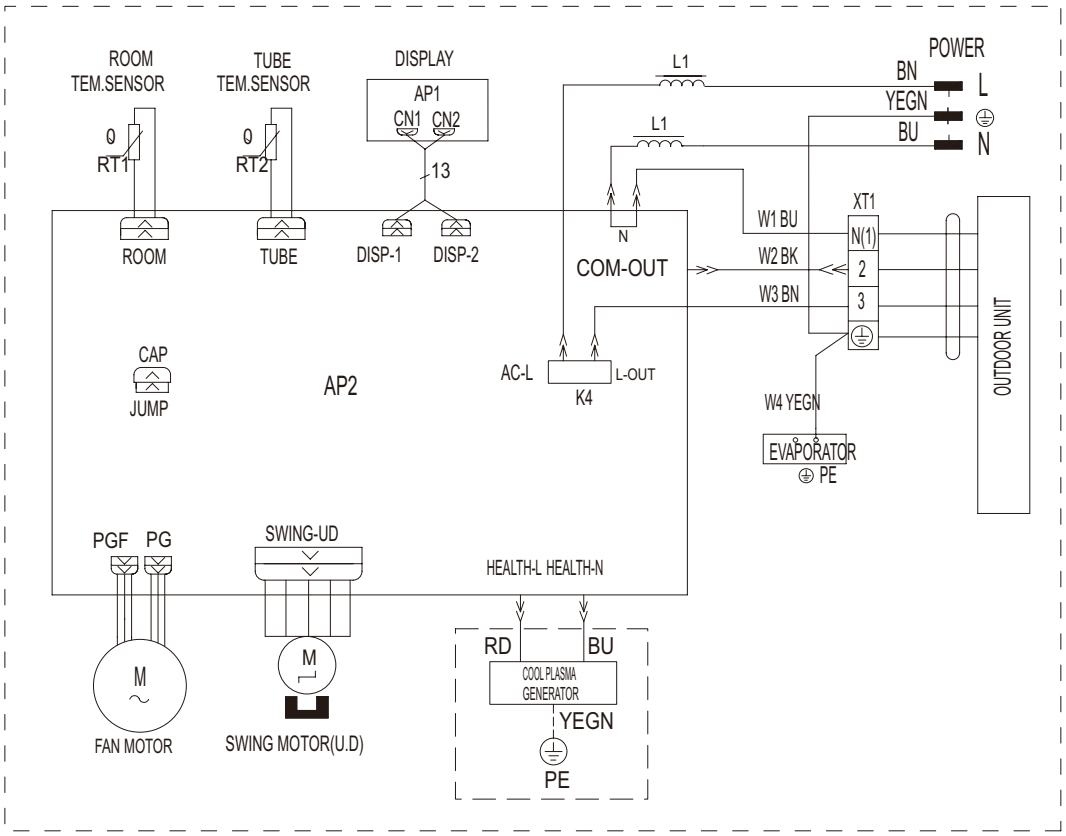
5. Schematic Diagram

5.1 Electrical Wiring

- **Electrical Data**

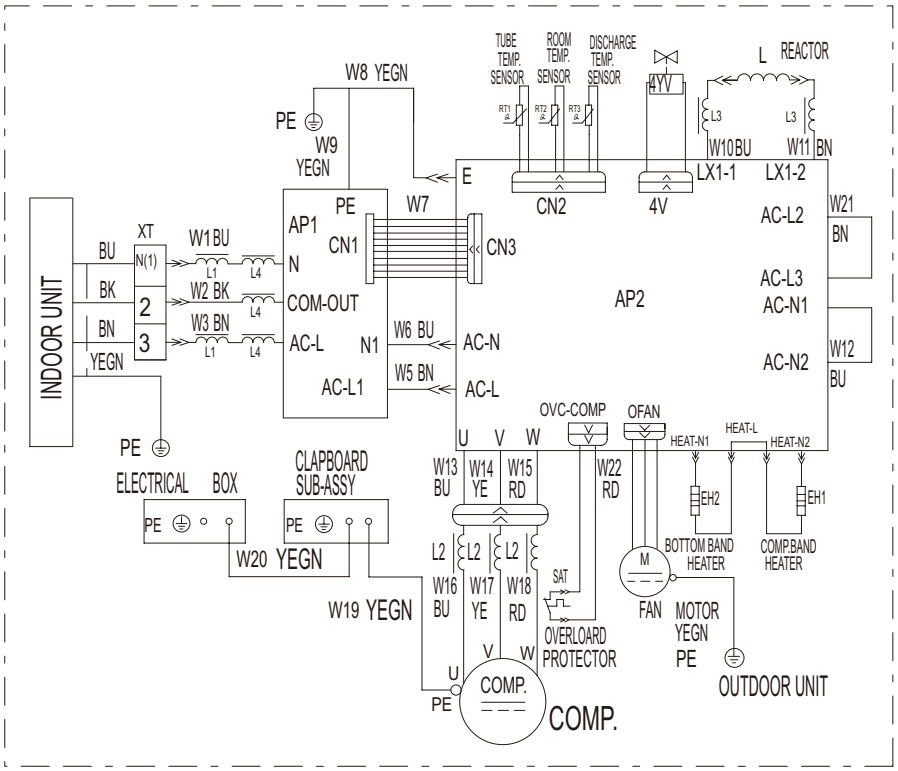
Symbol	Color symbol	Symbol	Parts name
BU	BLUE	COMP	COMPRESSOR
YE	YELLOW	CT12	OVERLOAD
RD	RED	4V	4-WAY VALVE
OG	ORANGE	⏚	PROTECTIVE EARTH
BN	BROWN	EKV	ELECTRONIC EXPANSION VALVE
BK	BLACK		
YEGN	YELLOW GREEN		
WH	WHITE		

- **Indoor Unit**

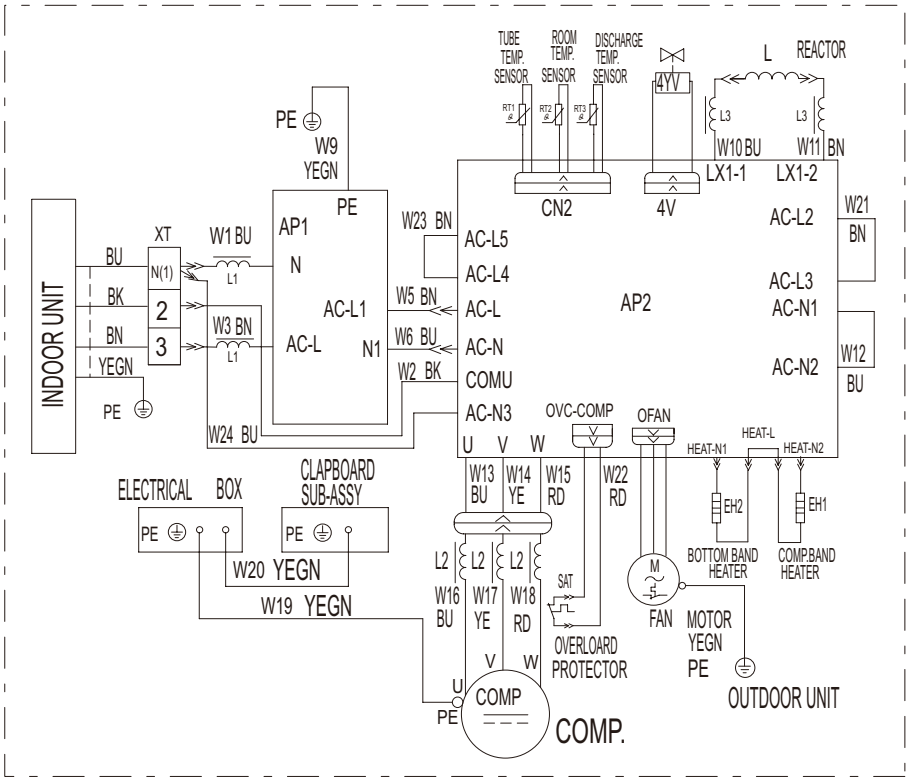


- **Outdoor Unit**

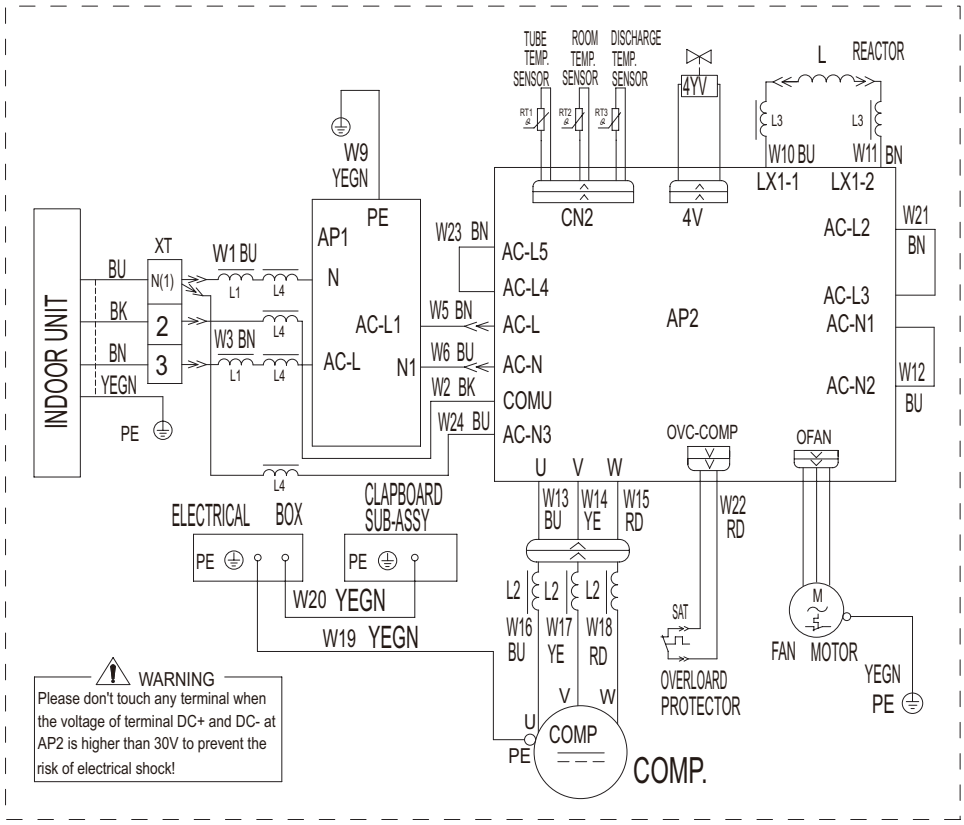
GWH09RA-K3DNA1A/O(CB144W0021)



GWH09MA-K3DNA3B/O(CB171W0191)
GWH12MB-K3DNA3B/O(CB171W0212)



GWH09MA-K3DNA3B/O(CB171W0192)
GWH12MB-K3DNA3B/O(CB171W0213)

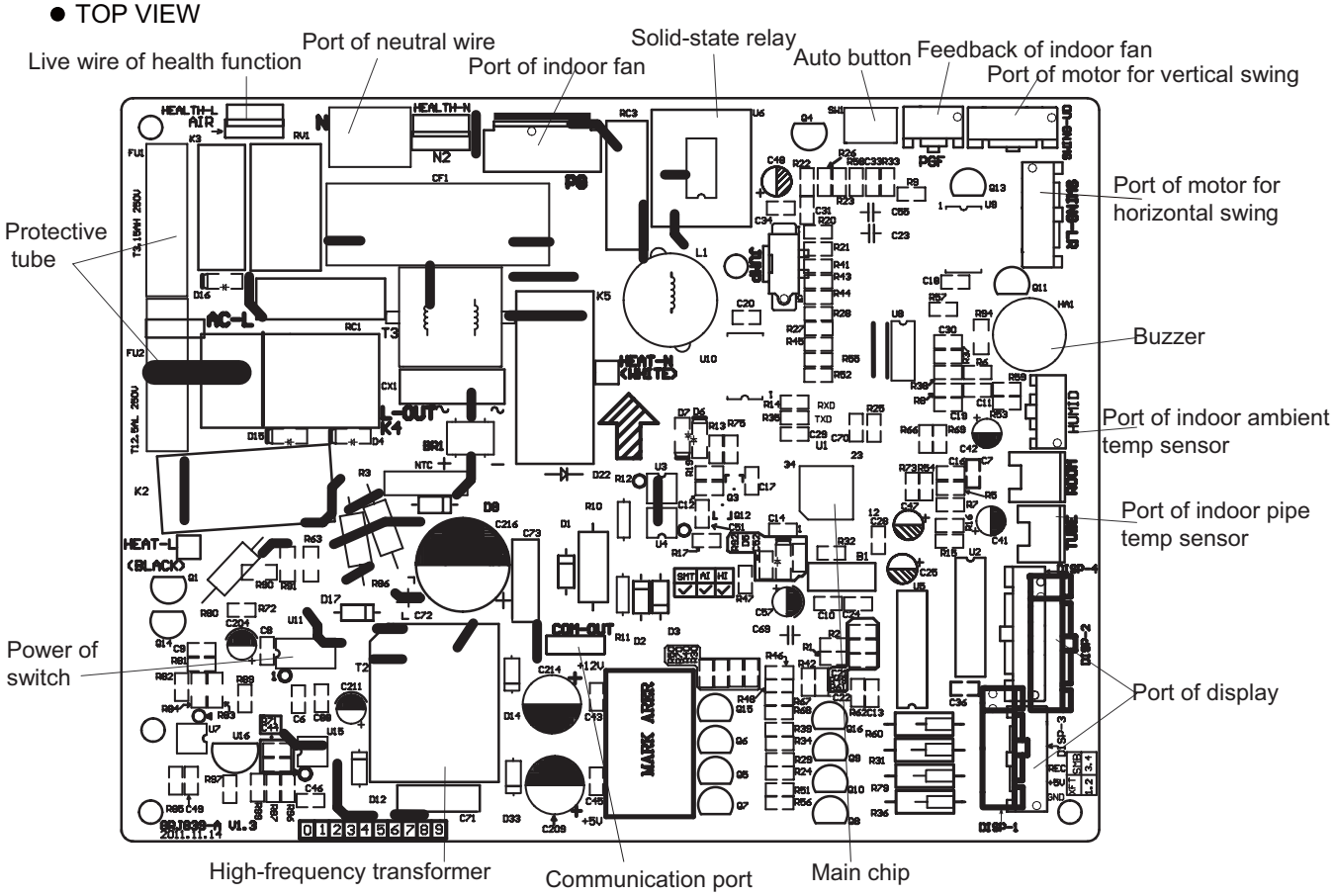


These circuit diagrams are subject to change without notice, please refer to the one supplied with the unit.

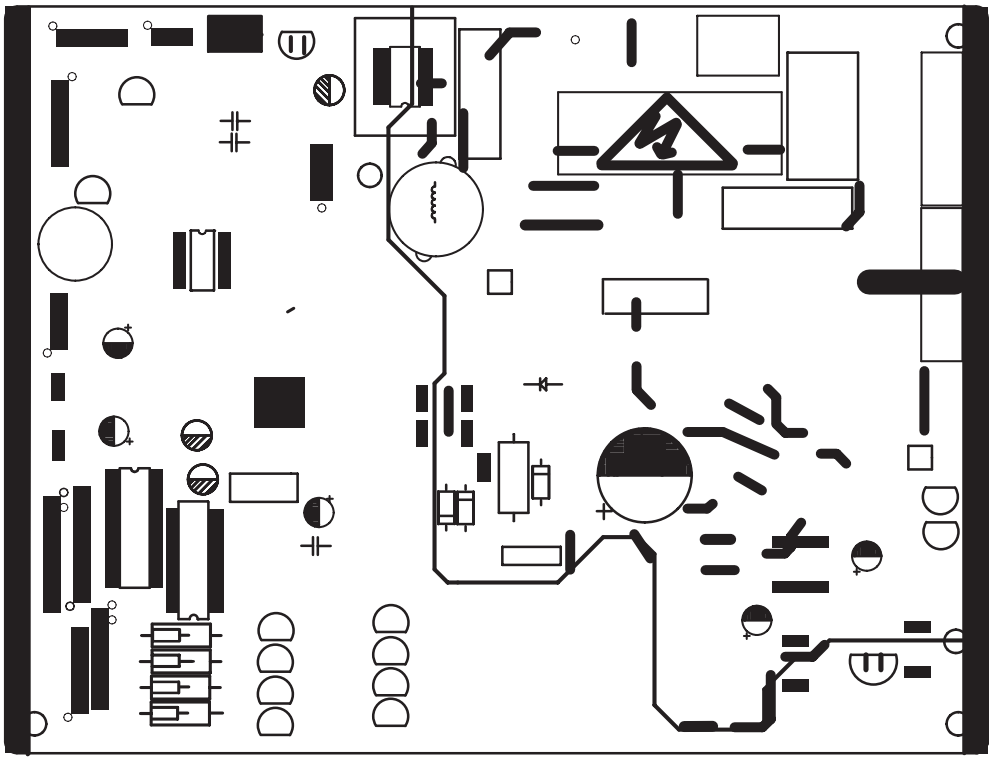
5.2 Printed Circuit Board

(1) Indoor unit

● TOP VIEW



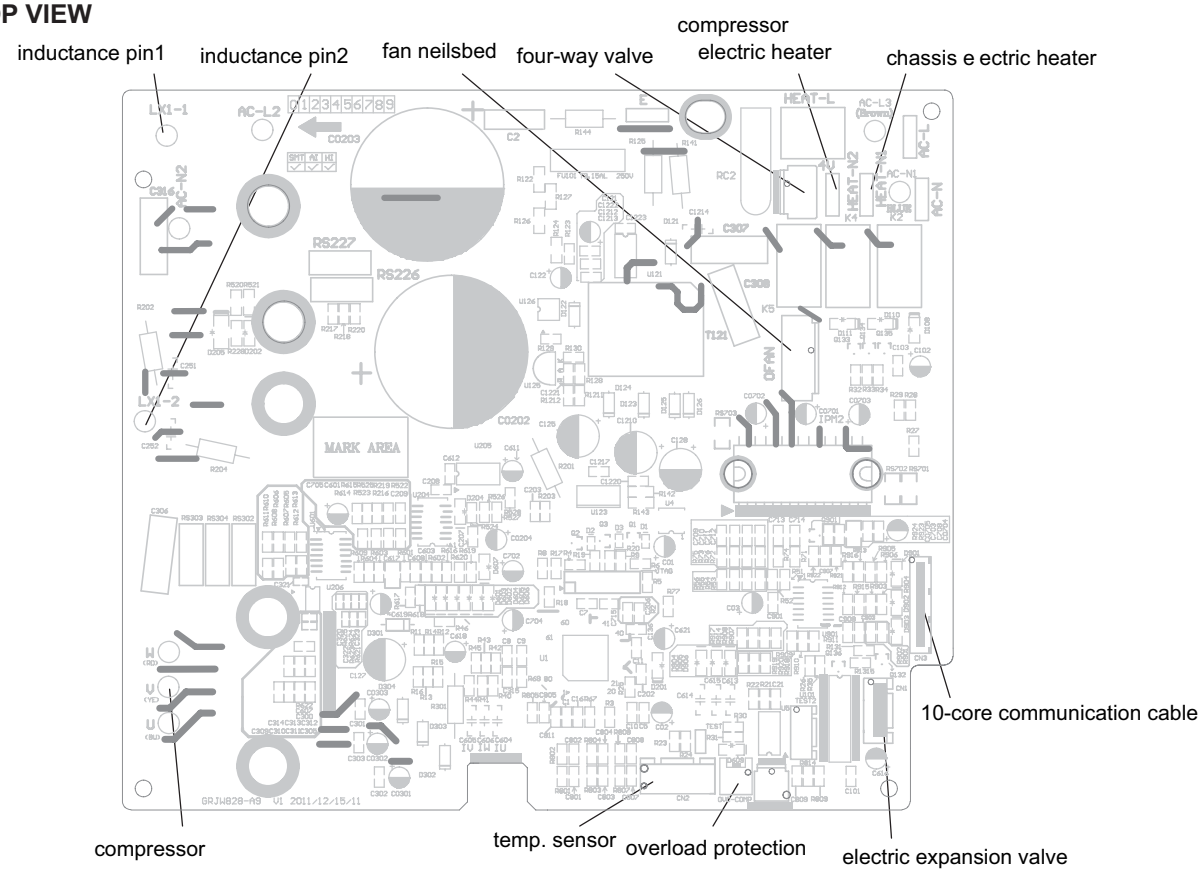
● BOTTOM VIEW



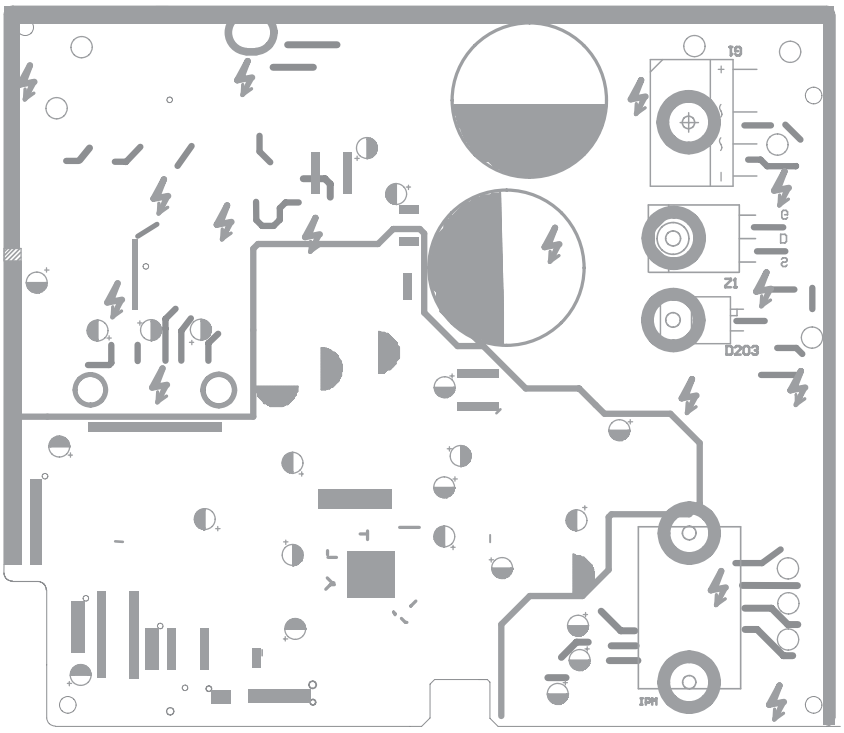
(2) Outndoor unit

GWH09RA-K3DNA1A/O(CB144W0021)

- **TOP VIEW**

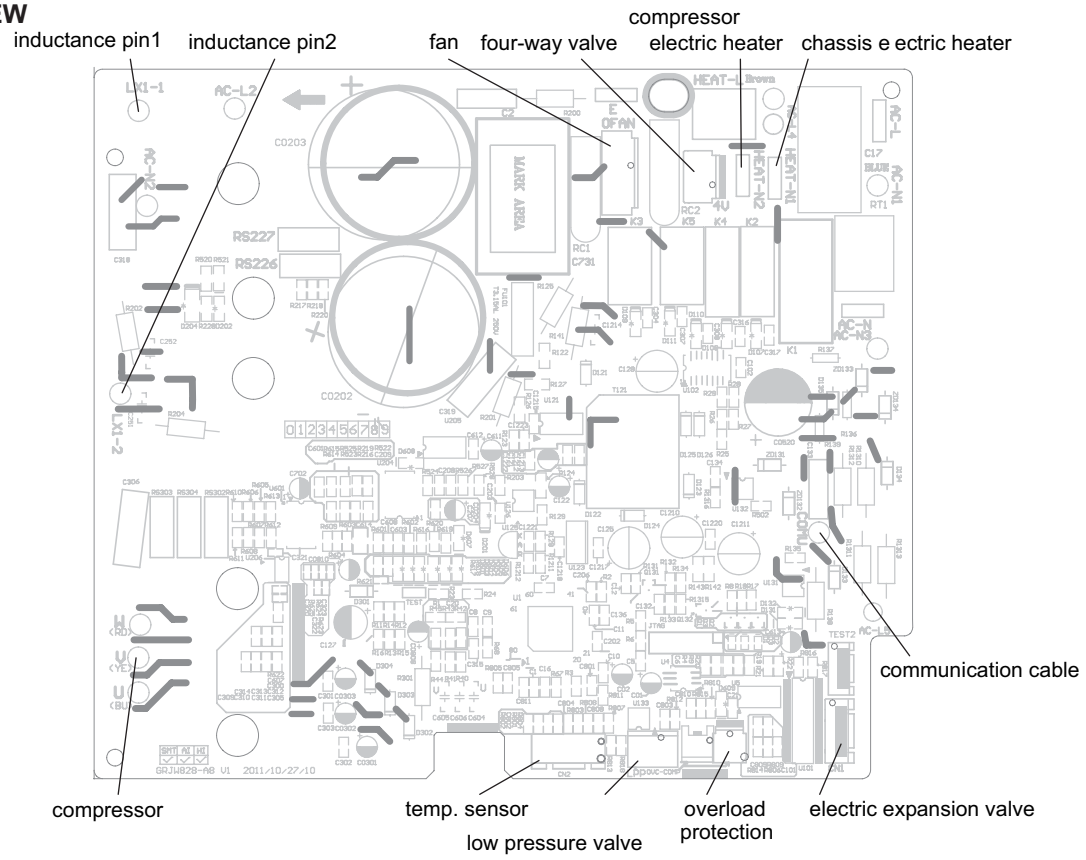


- **BOTTOM VIEW**

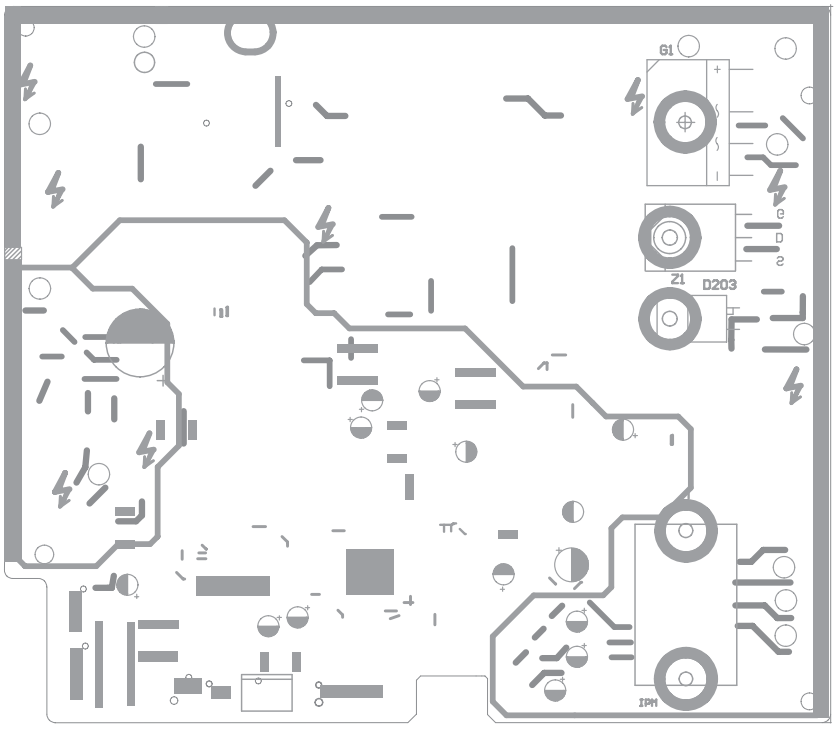


GWH09MA-K3DNA3B/O(CB171W0191), GWH12MB-K3DNA3B/O(CB171W0212)
GWH09MA-K3DNA3B/O(CB171W0192), GWH12MB-K3DNA3B/O(CB171W0213)

- **TOP VIEW**

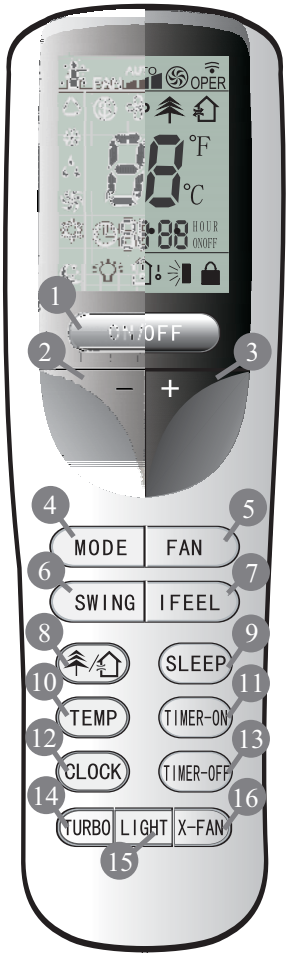


- **BOTTOM VIEW**



6. Function and Control

6.1 Remote Control Operations



1 ON/OFF
Press it to start or stop operation.

2 -
Press it to decrease temperaturesetting.

3 +
Press it to increase temperaturesetting.

4 MODE
Press it to select operation mode(AUTO/COOL/DRY/FAN/HEAT).

5 FAN
Press it to set fan speed.

6 SWING
Press it to set swing angle.

7 I FEEL

8 /
Press it to set HEALTH or AIR function.

9 SLEEP

10 TEMP

11 TIMER ON
Press it to set auto-on timer.

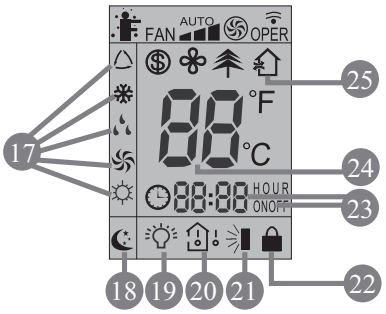
12 CLOCK
Press it to set clock function.

13 TIMER OFF
Press it to set auto-off timer.

14 TURBO

15 LIGHT
Press it to turn on/off the light.

16 X-FAN



17 MODE icon:
If MODE button is pressed,current operation mode icon (AUTO), (COOL), (DRY), (FAN) or (HEAT only for heat pumpmodels) will show.

18 SLEEP icon :
is displayed by pressing the SLEEP button. Press this button again to clear the display.

19 LIGHT icon:
is displayed by pressing the LIGHT button. Press LIGHT button again to clear the display.

20 TEMP icon:
Pressing TEMP button, (set temperature), (indoor ambient temperature), (outdoor ambient temperature) and blank is displayed circularly.

21 Up & down swing icon:
is displayed when pressing the up & down swing down button. Press this button again to clear the display.

22 LOCK icon:

is displayed by pressing "+" and "-" buttons simultaneously. Press them again to clear the display.

23 SET TIME display:

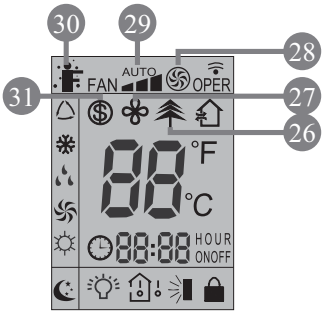
After pressing TIMER button,ON or OFF will blink.This area will show the set time.

24 DIGITAL display:

This area will show the set temperature. In SAVE mode,"SE" will be displayed.

25 AIR icon:

is displayed when pressing the AIR button.Press this button again to clear the display.



26 HEALTH icon:

is displayed when pressing the HEALTH button.Press this button again to clear the display.

27 X-FAN icon:

is displayed when pressing the X-FAN button. Press this button again to clear the display.

28 TURBO icon:

is displayed when pressing the TURBO button.Press this button again to clear the display.

29 FAN SPEED display:

Press FAN button to select the desired fan speed setting(AUTOLow-Med-High).Your selection will be displayed in the LCD windows, except the AUTO fan speed.

30 I FEEL icon:

is displayed when pressing the I FEEL button.Press this button again to clear the display.

31 8℃ Heating icon:

is displayed when Pressing "TEMP" and "CLOCK" simultaneously in Heat mode.

Remote Controller Description

1 ON/OFF :

Press this button to turn on the unit. Press this button again to turn off the unit.

2 - :

Press this button to decrease set temperature. Hold it down for above 2 seconds to rapidly decrease set temperature. In AUTO mode, set temperature is not adjustable.

3 + :

Press this button to increase set temperature. Hold it down for above 2 seconds to rapidly increase set temperature. In AUTO mode, set temperature is not adjustable.

4 MODE :

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL,DRY, FAN,and HEAT *, as the following:

AUTO▶ COOL ▶ DRY ▶ FAN ▶HEAT*

*Note:Only for models with heating function.

After energization, AUTO mode is defaulted. In AUTO mode, the set temperature will not be displayed on the LCD, and the unit will automatically select the suitable operation mode in accordance with the room temperature to make indoor room comfortable.

5 FAN :

This button is used for setting Fan Speed in the sequence that goes from AUTO, , to then back to Auto.

6 SWING:

Press this button to set up & down swing angle, which circularly changes as below:

This remote controller is universal. If any command , or is sent out,the unit will carry out the command as

indicates the guide louver swings as:

7 I FEEL:

Press this button to turn on I FEEL function. The unit automatically adjust temperature according to the sensed temperature. Press this button again to cancel I FEEL function.

8 /

Press this button to achieve the on and off of healthy and scavenging functions in operation status. Press this button for the first time to start scavenging function; LCD displays“ ”. Press the button for the second time to start healthy and scavenging functions simultaneously; LCD displays“ ” and “ ” . Press this button for the third time to quit healthy and scavenging functions simultaneously. Press the button for the fourth time to start healthy function; LCD display “ ”. Press this button again to repeat the operation above.

9 SLEEP:

Press this button to go into the SLEEP operation mode. Press it again to cancel this function. This function is available in COOL , HEAT (Only for models with heating function) or DRY mode to maintain the most comfortable temperature for you.

10 TEMP:

Press this button, could select displaying the indoor setting temperature or indoor ambient temperature.When the indoor unit firstly power on it will display the setting temperature, if the temperature's displaying status is changed from other status to" ",displays the ambient temperature, 5s later or within 5s, it receives other remote control signal that will return to display the setting temperature. if the users haven't set up the temperature displaying status,that will display the setting temperature.

11 TIMERON :

Press this button to initiate the auto-ON timer. To cancel the auto-timer program, simply press this button again.

After press of this button, disappear sand " ON " blinks .00:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Every press of either button changes the time setting by 1 minute. Hold down either button to rapidly change the time setting by 1 minute and then 10 minutes. Within 5 seconds after setting, press TIMER ON button to confirm.

12 CLOCK :

Press CLOCK button, blinking. Within 5 seconds, pressing + or - button adjusts the present time. Hold down either button for above 2 seconds to increase or decrease the time by 1 minute every 0.5 second and then by 10 minutes every 0.5 second. During blinking after setting, press CLOCK button again to confirm the setting, and then will be constantly displayed.

13 TIMER OFF :

Press this button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again. TIMER OFF setting is the same as TIMER ON.

14 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. In COOL mode, the unit will blow strong cooling air at super high fan speed. In HEAT mode, the unit will blow strong heating air at super high fan speed.

15 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display 's light. If the light is turned on , is displayed. If the light is turned off, disappears.

16 X-FAN:

Pressing X-FAN button in COOL or DRY mode, the icon is displayed and the indoor fan will continue operation for 10 minutes in order to dry the indoor unit even though you have turned off the unit.

After energization, X-FAN OFF is defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

17 Combination of "+" and "-" buttons: About lock

Press "+ " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, is displayed. In this case, pressing any button, blinks three times.

18 Combination of "MODE " and "-" buttons : About switch between Fahrenheit and centigrade At unit OFF, press "MODE" and "- " buttons simultaneously to switch between ℃ an d ℉ .

19 Combination of " TEMP " and "CLOCK" buttons : About Energy-saving Function

Press “TEMP” and “CLOCK” simultaneously in COOL mode to start energy-saving function. Nixie tube on the remote controller displays “SE”. Repeat the operation to quit the function.

20 Combination of " TEMP " and "CLOCK" buttons : About 8℃ Heating Function

Press “TEMP” and “CLOCK” simultaneously in HEAT mode to start 8℃ Heating Function Nixie tube on the remote controller displays “ ⓢ ” and a selected temperature of “ 8℃”. (46 if Fahrenheit is adopted). Repeat the operation to quit the function.

21 About Back-lighting Function

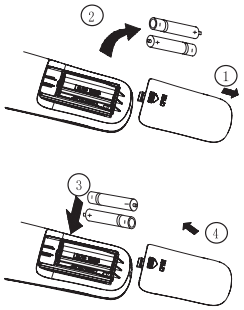
The unit lights for 4s when energizing for the first time, and 3s for later press.

Replacement of Batteries

1.Remove the battery cover plate from the rear of the remote controller.
(As shown in the figure)
2.Take out the old batteries.
3.Insert two new AAA1.5V dry batteries, and pay attention to the polarity.
4. Reinstall the battery cover plate.

★Notes:

●When replacing the batteries, do not use old or different types of batteries, otherwise, it may cause malfunction.
●If the remote controller will not be used for a long time, please remove batteries to prevent batteries from leaking.
●The operation should be performed in its receiving range.
●It should be kept 1m away from the TV set or stereo sound sets.
●If the remote controller does not operate normally, please take the batteries out and reinsert them after 30 seconds.If it still can't operate properly, replace the batteries.



Sketch map for replacing batteries

6.2 Description of Each Control Operation

1. Temperature Parameters

- ◆ Indoor preset temperature (T_{preset})
- ◆ Indoor ambient temperature ($T_{amb.}$)

2. Basic Functions

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started without a 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; and once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature;

(1)COOL mode

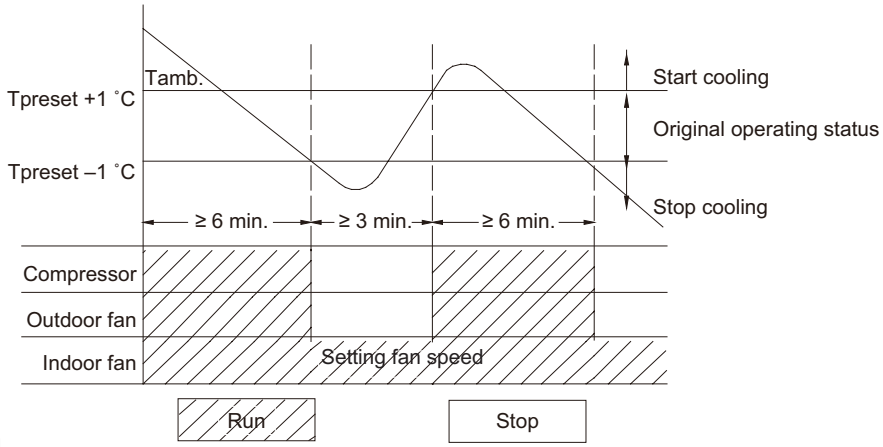
①The condition and process of cooling

If $T_{amb.} \geq T_{preset}$ COOL mode will act, the compressor and outdoor fan will run, and the indoor fan will run at the set speed.

If $T_{amb.} \leq T_{preset}$-2℃, the compressor will stop, the outdoor fan will delay 30 seconds to stop, and the indoor fan will run at the set speed.

If T_{preset}-2℃ $\leq T_{amb} \leq T_{preset}$, the unit will keep running in the previous mode.

In this mode, the reversal valve will not be powered on and the temperature setting range is 16℃ ~30℃.



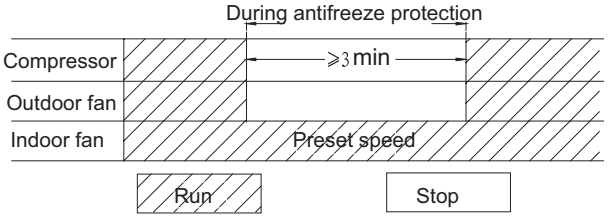
②Protection function

◆Overcurrent protection

If total current is high, the compressor will run in limited frequency. If total current is too high, the compressor will stop, the outdoor fan will delay 30 seconds to stop, indoor unit will display E5 and outdoor yellow light will blink 5 times.

◆Antifreezing protection

When the antifreezing protection is detected, the compressor will stop, the outdoor fan will stop after 30 seconds, and the indoor fan and swing motor will keep running in the original mode. When antifreezing protection is eliminated and the compressor has stopped for 3 minutes, the compressor will resume running in the original mode.



(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If $T_{amb.} > T_{preset}$, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If T_{preset} -2℃$\leqslant T_{amb.} \leqslant T_{preset}$, the compressor remains at its original operation state.

If $T_{amb.} < T_{preset}$ -2℃, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will operate at low speed.

② Protection

Protection is the same as that under the cooling mode.

(3) HEAT mode

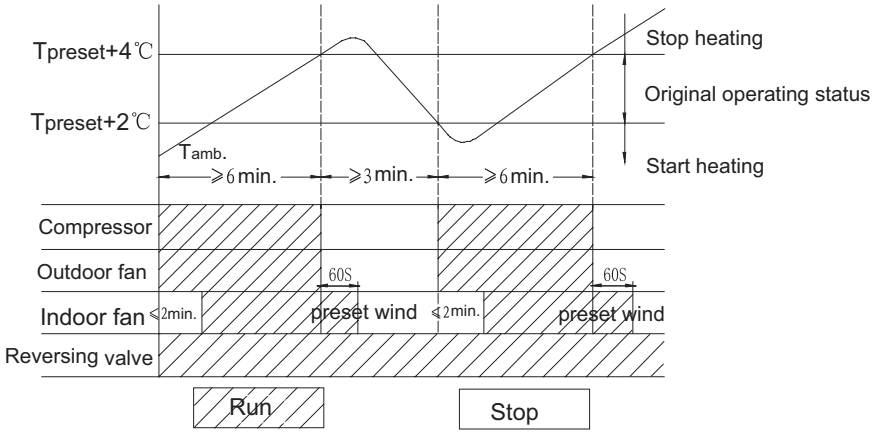
①The condition and process of heating

If $T_{amb} \leq T_{preset}+2℃$, HEAT mode will act, the compressor, outdoor fan and reversal valve will run, the indoor fan will delay 3min to stop at the latest

If $T_{preset}+2℃$ T_{amb} $T_{preset}+5℃$,the unit will keep running in the original mode.

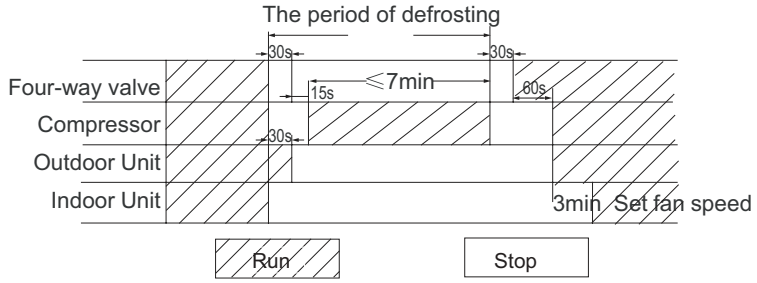
If $T_{amb} \geq T_{preset}+5℃$, the compressor will stop, the outdoor fan will delay 30sec to stop and indoor fan will blow 60S at low speed, the fan speed cannot be shifted within blow residual heat.

- In this mode, the temperature setting range is 16℃ ~30℃ .
- The air conditioner will adjust the running frequency of the compressor automatically according to the change of ambient temperature.
- When the unit is turned off in HEAT mode, or switched to other mode from HEAT mode, the four-way valve will be powered off after the compressor stops.



②The condition and process of defrosting

When frost is detected in the condenser, the system will enter into defrosting state. When defrosting starts, the compressor and indoor fan will stop, and the outdoor fan and four-way valve will delay 30 seconds to stop. The compressor will start after 15 seconds and then defrosting will be started. When the compressor has run for 7 minutes or defrosting is finished, the compressor will stop. After 30 seconds the four-way valve opens and after another 60 seconds, the compressor and outdoor fan resume running. The indoor fan will delay 3 minutes to run at the latest and temperature on the display panel shows H1.



③Protection function

Anti-cold-wind protection

In HEAT mode, in order to prevent the indoor unit from blowing out cold wind, each time the compressor starts, the indoor fan will delay 3 minutes after the compressor to run at the latest and it can adjust fan speed automatically when temperature is low.

Overcurrent protection

Overcurrent protection is the same with that in COOL mode.

3.Protection

◆ Cold air prevention

The unit is started under heating mode (the compressor is ON):

① In the case of $T_{indoor\ amb.}$ <24℃ : if $T_{tube} \leq 40℃$ and the indoor fan is at stop state, the indoor fan will begin to run at low speed with a time lag of 2 minutes. Within 2 minutes, if $T_{tube} > 40℃$, the indoor fan also will run at low speed; and after 1-minute operation at low speed, the indoor fan will be converted to operation at preset speed.Within 1-minute low speed operation or 2-minute non-operation, if $T_{tube} > 42℃$, the fan will run at present speed.

② In the case of $T_{indoor\ amb.} \geq 24℃$: if $T_{tube} \leq 42℃$, the indoor fan will run at low speed, and after one minute, the indoor fan will be converted to preset speed. Within one-minute low speed operation, if $T_{tube} > 42℃$, the indoor fan will be converted to preset speed.

Note: $T_{indoor\ amb.}$ indicated in 1 and 2 refers to, under initially heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

◆ Total current up and frequency down protection

If the total current $I_{total} \leq W$, frequency rise will be allowed; if $I_{total} \geq X$, frequency rise will not be allowed; if $I_{total} \geq Y$, the compressor will run at reduced frequency; and if $I_{total} \geq Z$, the compressor will stop and the outdoor fan will stop with a time lag of 30s.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electric heater will stop.

➢ Under the mode, temperature can be set within a range of 16 - 30℃.

(5) AUTO Mode

a. When Tamb.≥26℃, the unit will operate under cooling mode, while the implied setting temperature is 25℃.

b. When Tamb.≤22℃, the heat pump unit will operate under heating mode, while the implied setting temperature is 20℃; the cooling only unit will operate under fan mode, while the displaying setting temperature is 25℃.

c. When 23℃≤Tamb.≤25℃, the unit will operate as previous mode. If it is the first time energized, the unit will operate under fan mode.

d. When the unit is operating under auto mode, the compressor frequency is the same as cooling/heating mode when the unit is under cooling/heating operation.

2.Protection

a. In cooling operation, protection is the sam e as that under the cooling mode;

b. In heating operation, protection is the same as that under the heating mode;

c. When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor will remain unchanged for at least 6 minutes.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① Overload protection

T_{tube}: measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat exchanger under heating mode.

1) Cooling overload

a. If $T_{tube} \leq 52$℃, the unit will return to its original operation state.

b. If $T_{tube} \geq 55$℃, frequency rise is not allowed.

c. If $T_{tube} \geq 58$℃, the compressor will run at reduced frequency.

d. If $T_{tube} \geq 62$℃, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

a. If $T_{tube} \leq 52$℃, the unit will return to its original operation state.

b. If $T_{tube} \geq 55$℃, frequency rise is not allowed.

c. If $T_{tube} \geq 58$℃, the compressor will run at reduced frequency.

d. If $T_{tube} \geq 62$℃, the compressor will stop and the indoor fan will blow residue heat and then stop.

② Exhaust temperature protection of compressor

If exhaust temperature ≥98℃, frequency is not allowed to rise.

If exhaust temperature ≥103℃, the compressor will run at reduced frequency.

If exhaust temperature ≥110℃, the compressor will stop.

If exhaust temperature ≤90℃ and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

③ Communication fault

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

④ Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be started again.

⑤ Overload protection

If temperature sensed by the overload sensor is over 115℃, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. If temperature is below 95 ℃, the overload protection will be relieved.

⑥ If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

⑦ Faults of temperature sensors

Designation of sensors	Faults
Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Indoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds, and no detection is performed within 10 minutes after defrost begins.
Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.
Overload	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.

3. Other Controls

(1) ON/OFF

Press the remote button ON/OFF: the on-off state will be changed once each time you press the button.

(2) Mode Selection:

Press the remote button MODE, then select and show in the following ways: AUTO, COOL, DRY, FAN, HEAT, AUTO.

(3) Temperature Setting Option Button

Each time you press the remote button TEMP+ or TEMP-, the setting temperature will be up or down by 1℃. Regulating Range: 16~30℃, the button is useless under the AUTO mode.

(4) Time Switch

You should start and stop the machine according to the setting time by remote control.

(5) SLEEP State Control

a. When the air conditioner is under the mode of COOL, DRY, and the SLEEP mode has been set well, after the SLEEP state keeps about 1 hour, the pre-setting T will raise 1℃, and it will raise 1 ℃ again after 2 hours, so it raise 2℃ in 2 hours, then it will run on at the setting temperature and wind speed.

b. When the air conditioner is under the mode of HEAT, and the Timer has been set well, after the SLEEP state keeps about 1 hour, the pre-setting T will reduce 1 ℃, and it will reduce 1 ℃ again after 2 hours, so it reduce 2℃ in 2 hours, then it will run on at the setting temperature and wind speed.

c. The setting temperature keeps the same under the FAN mode and AUTO mode.

(6) Indoor Fan Control

Indoor fan could be set at ultra-high, high, medium, low speed by wireless remote controller and operated as that speed.
Auto fan speed could be set as well, indoor fan will operate under auto fan speed as following:
1. Under heating mode: auto speed under heating or auto heating mode:
a. When Tamb.≤Tpreset+1℃, indoor fan will operate at high speed;
b. When Tpreset+1℃＜Tamb.＜Tpreset+3℃, indoor fan will operate at medium speed;
c. When Tamb.≥Tpreset+3℃, indoor fan will operate at low speed;
There should be at least 180s operation time during switchover of each speed.
2. Under cooling mode: auto speed under cooling or auto cooling mode:
a. When Tamb.≥Tpreset+2℃, indoor fan will operate at high speed;
b. When Tpreset＜Tamb.＜Tpreset+2℃, indoor fan will operate at medium speed;
c. When Tamb.≤Tpreset, indoor fan will operate at low speed
There should be at least 180s operation time during switchover of each speed.

(7) Buzzer Control

The buzzer will send a “Di” sound when the air conditioner is powered up or received the information sent by the remote control or there is a button input, the single tube cooler doesn’t receive the remote control ON signal under the mode of heating mode.

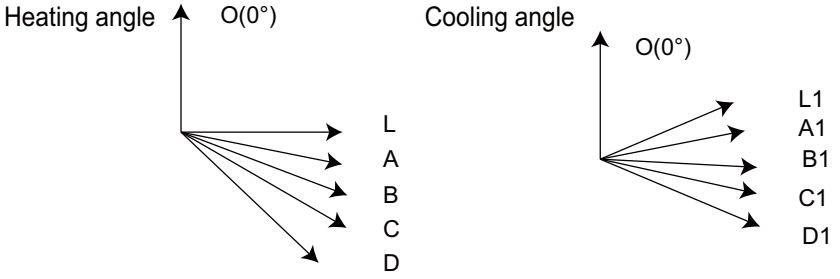
(8) Auto button

If the controller is on, it will stop by pressing the button, and if the controller is off, it will be automatic running state by pressing the button, swing on and light on, and the main unit will run based on the remote control if there is remote control order.

(9) Up-and-Down Swinging Control

When power on, the up-and-down motor will firstly move the air deflector to o counter-clockwise, close the air outlet. After starting the machine, if you don’t set the swinging functi on, heating mode and auto-heating mode, the up-and-down air deflector will move to D clockwise; under other modes, the up-and-down air deflector will move to L1. If you set the swinging function when you start the machine, then the wind blade will swing between L and D. The air deflector has 7

swinging states: Location L, Location A, Location B, Location C, Location D, Location L to Location D, stop at any location between L-D (the included angle between L~D is the same). The air deflector will be closed at 0 Location, and the swinging is effectual only on condition that setting the swinging order and the inner fan is running. The indoor fan and compressor may get the power when air deflector is on the default location.



(10) Display

① Operation pattern and mode pattern display

All the display patterns will display for a time when the power on, the operation indication pattern will display in red under standby status. When the machine is start by remote control, the indication pattern will light and display the current operation mode (the mode light includes: Cooling, heating and dehumidify). If you close the light key, all the display patterns will close.

② Double-8 display

According to the different setting of remote control, the nixie light may display the current temperature (the temperature scope is from 16℃ to 30℃) and indoor ambient temperature. The heating and air supply temperature will display 25℃ under auto-mode, the temperature will display 20℃ under the auto-heating mode, and the temperature will display H1 under the defrosting mode.(If you set the fahrenheit temperature display, the nixie light will display according to fahrenheit temperature)

(11) Protection function and failure display

E2: Freeze-proofing protection E4: Exhausting protecti on E5: Overcurrent protection

E6: Communication failure

F1: Indoor ambient sensor start and short circuit (continuously measured failure in 30S)

F2: Indoor evaporator sensor start and short circuit (continuously measured failure in 30S)

F3: Outdoor ambient sensor start and short circuit (continuously measured failure in 30S)

F4: Outdoor condenser sensor start and short circuit (continuously measured failure in 30S, and don't measure within 10 minutes after defrosted)

F5: Outdoor exhausting sensor start and short circuit (continuously measured failure in 30S after the compressor operated 3 minutes)

H3: Overload protection of compressor H5: Module protection

PH: High-voltage protection PL: Low-voltage protection

P1: Nominal cooling and heating test P2: Maximum cooling and heating test

P3: Medium cooling and heating test P0: Minimum cooling and heating test

(12) Drying Function

You may start or stop the drying function under the modes of cooling and dehumidify at the starting status (The modes of automatism, heating and air supply do not have drying function). When you start the drying function, after stop the machine by pressing the switch button, you should keep running the inner fans for 10 minutes under low air damper (The swing will operate as the former status within 10 minutes, and other load is stopped), then stop the entire machine; When you stop the drying function, press the switch button will stop the machine directly.

When you start the drying function, operating the drying button will stop the inner fans and close the guide louver.

(13) Memory Function

When interrupting the power supply memory content: mode, swing function, light, set temperature and wind speed.

After interrupted the power supply, the machine will start when recovering the power according to the memory content automatically.

7. Installation Manual

7.1 Notices for Installation

1.The unit installation work must be done by qualified personnel according to the local rules and this manual.
2.Before installating, please contact with local authorized maintenance center, if unit is not installed by the authorized maintenance center, the malfunction may not solved,
due to discommodious contacts.
3.When removing the unit to the other place, please firstly contact with the authorized Maintenance Center in the local area.
4.the appliance must be positioned so that the plug is accessible
5.After pull out the power plug then make the appliance operation again,to avoid the icing of outdoor unit damage axial flow fan,should electrify the appliance but not operation for 4 hours for warm-up purpose.

7.1.1 Installation Site Instructions

Install in the following place may cause malfunction. If it is unavoidable contact withservice center please:
● strong heat sources, vapours, flammable gas or volatile liquids are emitted.
● high-frequency electro-magnetic waves are generated by radio equipment,welders and medical equipment.
● salt-laden air prevails (such as close to coastal areas).
● the air is contaminated with industrial vapours and oils.
● the air contains sulphures gas such as in hot spring zones.
● corrosion or poor air quality exists.

7.1.2 Installation Site of Indoor Unit

1.The air inlet and outlet should be away from the obstructions. Ensure the air can be blown through the whole room.
2.Select a site where the condensate can be easily drained out, and where it is easily connected to outdoor unit.
3.Select a place where it is out of reach of children.
4.Select a place where the wall is strong enough to withstand the full weight and vibration of the unit.
5.Be sure to leave enough space to allow access for routine maintenance. The installation site should be 250cm or more above the floor.
6.Select a place about 1m or more away from TV set or any other electric appliance.
7.Select a place where the filter can be easily taken out.
8.Make sure that the indoor unit is installed in accordance with installation dimension instructions.
9.Do not use the unit in the laundry or by swimming pool etc.

7.1.3 Installation Site of Outdoor Unit

1.Select a site where noise and outflow air emitted by the unit will not annoy neighbors.
2.Select a site where there is sufficient ventilation.
3.Select a site where there is no obstruction blocking the inlet and outlet.
4.The site should be able to withstand the full weight and vibration.
5.Select a dry place, but do not expose the unit to direct sunlight or strong wind.
6.Make sure that the outdoor unit is installed in accordance with the installation instructions, and is convenient for maintenance and repair.
7.The height difference between indoor and outdoor units is within 10m and the length of the connecting tubing does not exceed 15m(09K) or 20m(12K).
8.Select a place where it is out of reach of children.
9.Select a place where the unit does not have negative impact on pedestrians or on the city.

7.1.4 Safety Precautions for Electric Appliances

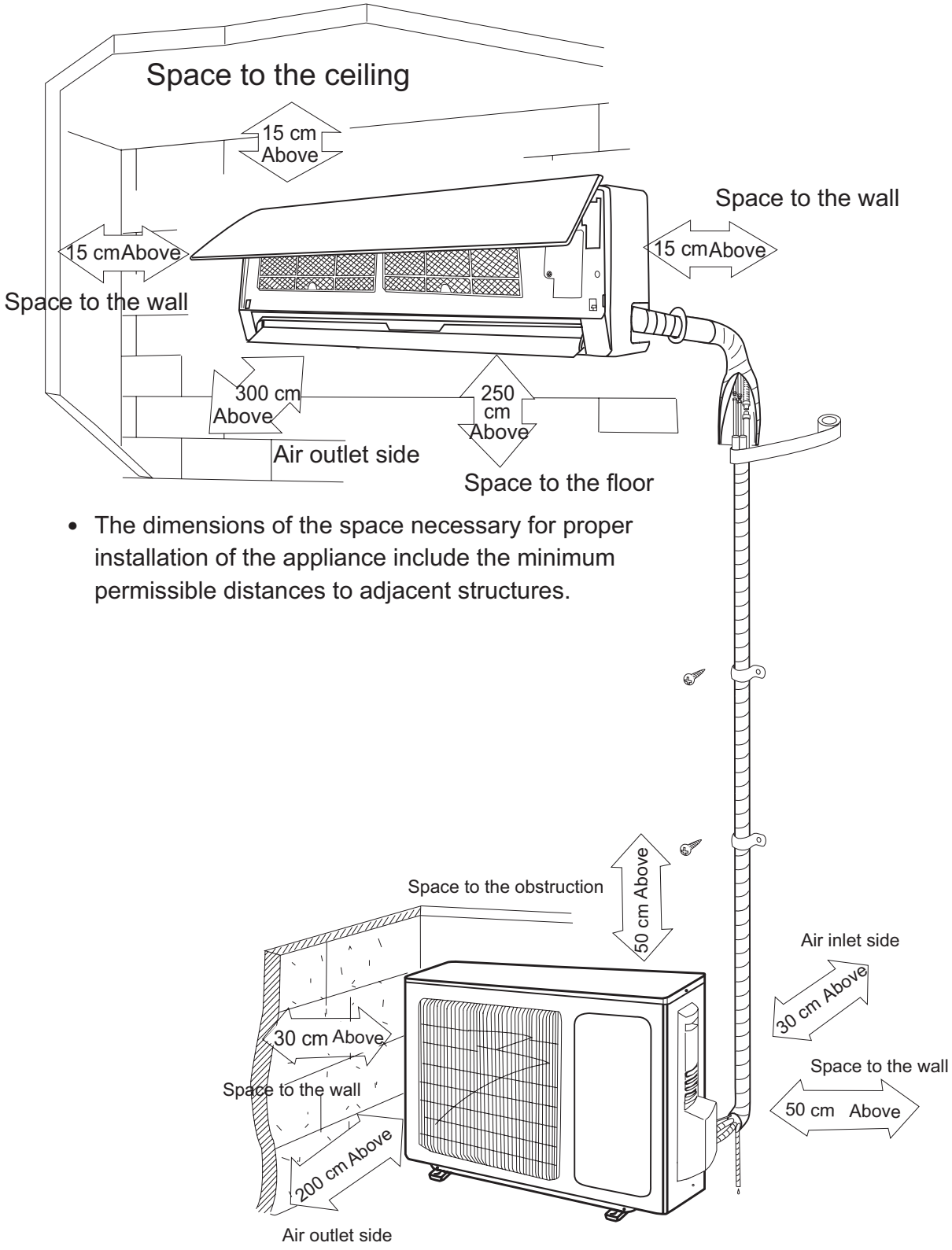
1.A dedicated power supply circuit should be used in accordance with local electrical safety regulations.
2.Don't drag the power cord with excessive force.
3.The unit should be reliably earthed and connected to an exclusive earth device by the professionals.
4.The air switch must have the functions of magnetic tripping and heat tripping to prevent short circuit and overload.
5.The minimum distance between the unit and combustive surface is 1.5m.
6.The appliance shall be installed in accordance with national wiring regulations.
7.An all-pole disconnection switch with a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Note:
● Make sure the live wire, neutral wire and earth wire in the family power socket are properly connected.
● There should be reliable circuit in the diagram.Inadequate or incorrect electrical connections may cause electric shock or fire.

7.1.5 Earthing Requirements

1.Air conditioner is type I electric appliance. Please ensure that the unit is reliably earthed.
2.The yellow-green wire in air conditioner is the earthing wire which can not be used for other purposes. Improper earthing may cause electric shock.
3.The earth resistance should accord to the national criterion.
4.The power must have reliable earthing terminal. Please do not connect the earthing wire with the following:
① Water pipe ② Gas pipe ③ Contamination pipe ④ Other place that professional personnel consider is unreliable
5. The model and rated values of fuses should accord with the silk print on fuse cover or related PCB.

7.2 Installation Dimension Diagram

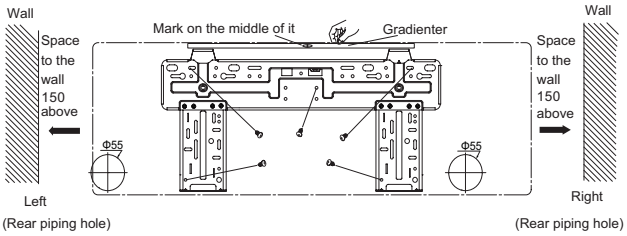


- The dimensions of the space necessary for proper installation of the appliance include the minimum permissible distances to adjacent structures.

7.3 Install Indoor Unit

7.3.1 Installation of Mounting Plate

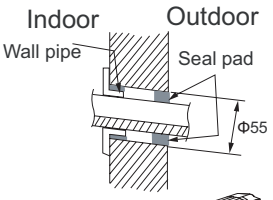
1.Mounting plate should be installed horizontally. As the water tray's outlet for the indoor unit is two-way type, during installation, the indoor unit should slightly slant to water tray's outlet for smooth drainage of condensate.
2.Fix the mounting plate on the wall with screws.
3.Be sure that the mounting plate has been fixed firmly enough to withstand about 60 kg.Meanwhile, the weight should beevenly shared by each screw.



Unit:mm

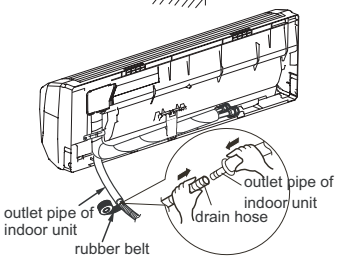
7.3.2 Drill Piping Hole

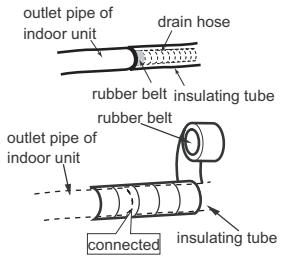
1.Slant the piping hole (Φ55) on the wall slightly downward to the outdoor side.
2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



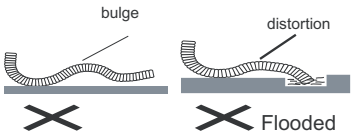
7.3.3 Installation of Drain Hose

1.Connect the drain hose to the outlet pipe of the indoor unit.Bind the joint with rubber belt.
2.Put the drain hose into insulating tube.
3.Wrap the insulating tube with wide rubber belt to prevent the shift of insulating tube.
Slant the drain hose downward slightly for smooth drainage of condensate.





Note: The insulating tube should be connected reliably with the sleeve outside the outlet pipe. The drain hose should be slanted downward slightly, without distortion, bulge or fluctuation. Do not put the outlet in the water.



7.3.4 Connecting Indoor and Outdoor Electric Wires

1.Open the front panel.
2.Remove the wiring cover,connect and fix power connection cord to the terminal board as shown in Fig 2.
3.Make the power connection cord pass through the hole at the back of indoor unit.
4.Reinstall the cord anchorage and wiring cover.
5.Reinstall the front panel.

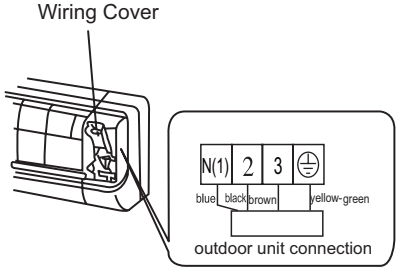


Fig 2

NOTE:

All wires between indoor and outdoor units must be connected by the qualified electric contractor.

●Electric wires must be connected correctly. Improper connection may cause malfunction.

●Tighten the terminal screws securely.

● After tightening the screws, pull the wire slightly to confirm whether it is firm or not.

●Make sure that the electric connections are earthed properly to prevent electric shock.

●Make sure that all wiring connections are secure and the cover plates are reinstalled properly. Poor installation may cause fire orelectric shock.

7.3.5 Installation of Indoor Unit

●The piping can be output from right, right rear, left or left rear.

1.When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chass is when necessary(As shown in Fig.3)

(1)Cut off tailing 1 when routing the wiring only;

(2)Cut off tailing 1 and tailing 2 when routing both the wiring and piping.

2.Take out the piping from body case; wrap the piping,power cords, drain hose with the tape and then make them pass through the piping hole. (As shown in Fig4)

3.Hang the mounting slots of the indoor unit on the upper hooks of the mounting plate and check if it is firm enough. (As shown in Fig.5)

4.The installation site should be 250cm or more above the floor.

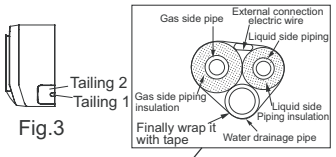


Fig.3

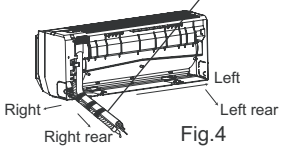


Fig.4

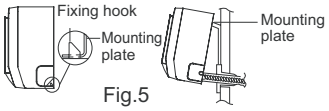


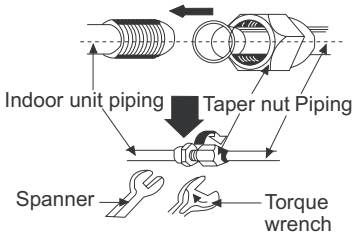
Fig.5

7.3.6 Installation of Connection Pipe

1.Align the center of the pipe flare with the related valve.

2.Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench by referring to the following:

Hex nut diameter	Tightening torque (N·m)
Φ6.35	15～20
Φ9.52	31～35
Φ12.7	50～55
Φ15.88	60～65
Φ19.05	70～75

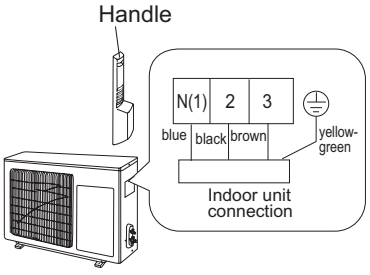


NOTE: Connect the connection pipe to indoor unit at first and then to outdoor unit. Handle piping bending with care. Do not damage the connection pipe. Ensure that the joint nutis tightened firmly, otherwise, it may cause leakage.

7.4 Install Outdoor Unit

7.4.1 Electric Wiring

1. Remove the handle on the right side plate of outdoor unit.
2. Take off wire cord anchorage. Connect and fix power connection cord to the terminal board. Wiring should fit that of indoor unit.
3. Fix the power connection cord clamps and then connect the corresponding connector.
4. Confirm if the wire has been fixed properly.
5. Reinstall the handle.



NOTE:

●Incorrect wiring may cause malfunction of spare part.

●After the wire has been fixed, ensure there is frees pace between the connection and fixing places on the lead wire.

Schematic diagram being reference only, please refer to real product for authentic information.

7.4.2 Air Purging and Leakage Test

1. Connect charging hose of manifold valve to charge end of low pressure valve (bothhigh/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open the handle of Lo manifold valve.
4. Open the vacuum pump for vacuumization. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside (If noise of vacuum pump has been changed, the reading of multimeter is 0). Then tighten the nut.
5. Keep vacuuming for more than 15mins and make sure the reading of multi-meteris -1.0X10^5 pa(-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten lid of low pressure valve. (As shown in Fig.6)

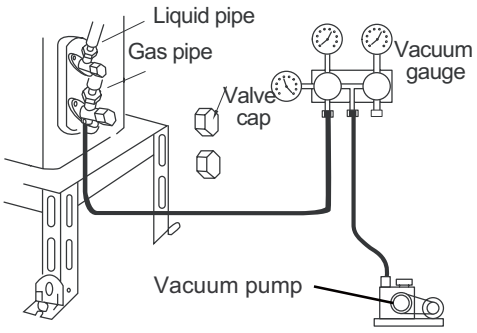
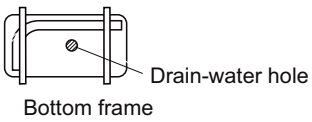
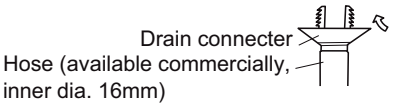


Fig.6

7.4.3 Outdoor Condensate Drainage (only for heat pump unit)

During heating operation, the condensate and defrosting water should be drained out reliably through the drain hose.Install the outdoor drain connector in a Φ25 hole on the base plate and attach the drain hose to the connector so that the waste water formed in the outdoor unit can bedrained out .The hole diameter 25 must be plugged.





7.5 Check after Installation and Test Operation

7.5.1 Check after Installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating) capacity
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage satisfactory?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the product.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part.
Are the inlet and outlet openings blocked?	It may cause insufficient cooling(heating) capacity.
Is the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

7.5.1 Check after Installation

1.Before Operation Test
(1)Do not switch on power before installation is finished completely.
(2)Electric wiring must be connected correctly and securely.
(3)Cut-off valves of the connection pipes should be opened.
(4)All the impurities such as scraps and thrums must be cleared from the unit.
2.Operation Test Method
(1)Switch on power and press ON/OFF button on the remote controller to start operation.
(2)Press MODE button to select the COOL, HEAT (Not available for cooling only unit), FAN to check whether the operation is normal or not.

7.6 Installation and Maintenance of Healthy Filter

7.6.1 Installation of Healthy Filter

1.Lift up the front panel from its two ends, as shown by the arrow direction, and then remove the air filter. (as shown in Fig.a)
2.Attach the healthy filter onto the air filter, (as shown in Fig.b).
3. Install the air filter properly along the arrow direction in Fig.c, and then close the panel .

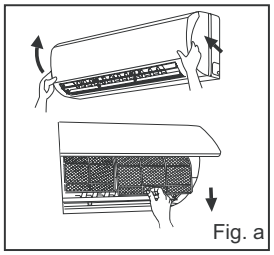


Fig. a

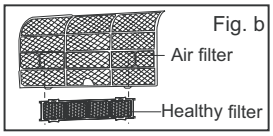


Fig. b

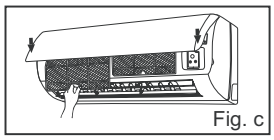


Fig. c

7.6.2 Cleaning and Maintenance

Remove the healthy filter and reinstall it after cleaning according to the installation instruction. Do not use brush or hard objects to clean the filter. After cleaning, be sure to dry it in the shade.

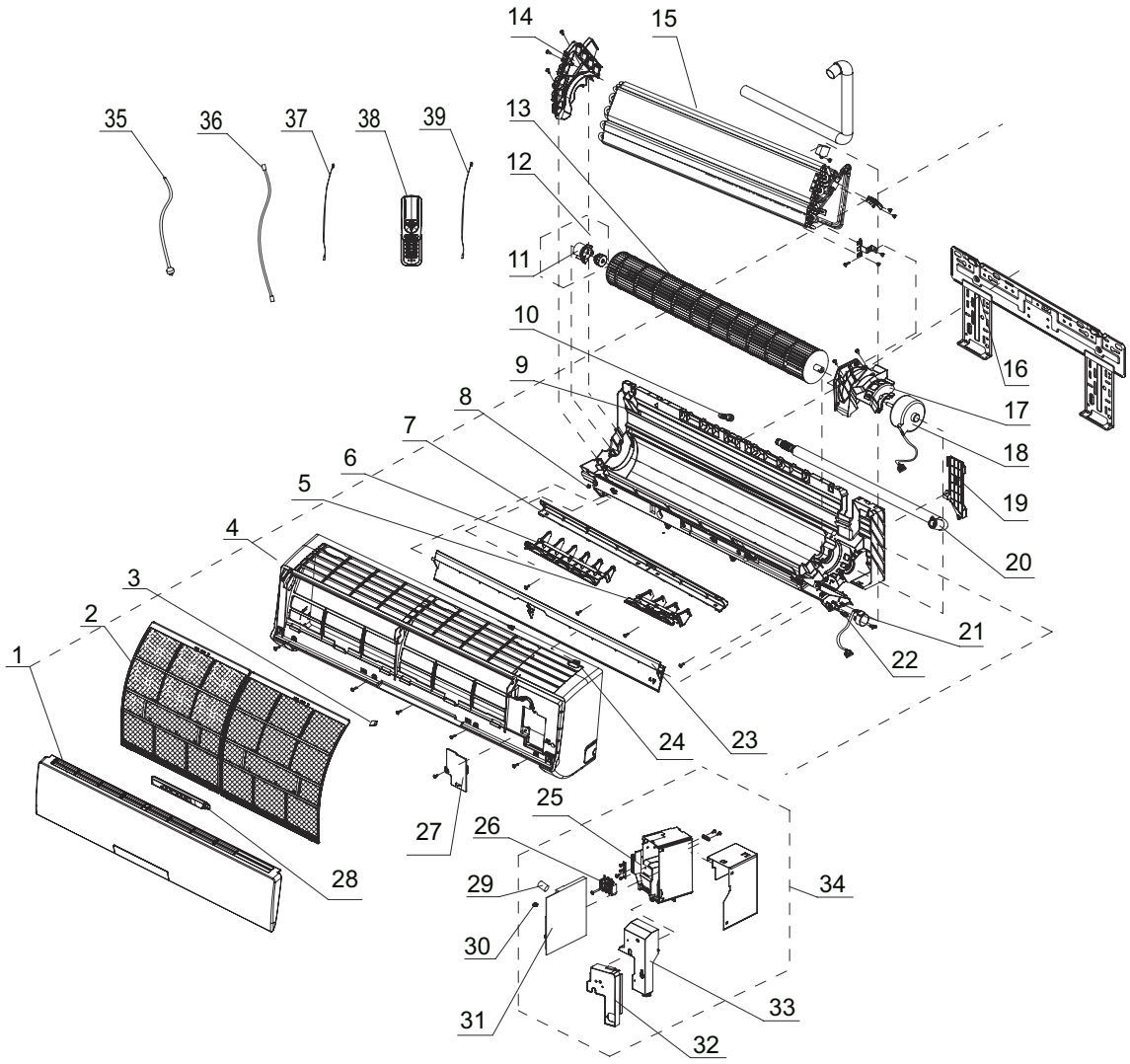
7.6.3 Service Life

The general service life for the healthy filter is about one year under normal condition. As for silver ion filter, it is ineffective when its surface becomes black (green).
This supplementary instruction is provided for reference to the unit with healthy filter. If the graphics provided herein are different from the actual product, please refer to the actual product. The quantity of healthy filters is based on the actual delivery.

8. Exploded Views and Parts List

8.1 Indoor Unit

GWH09RA-K3DNA1A/I, GWH09RA-K3DNA1B/I
GWH12RB-K3DNA1B/I, GWH12RB-K3DNA2B/I



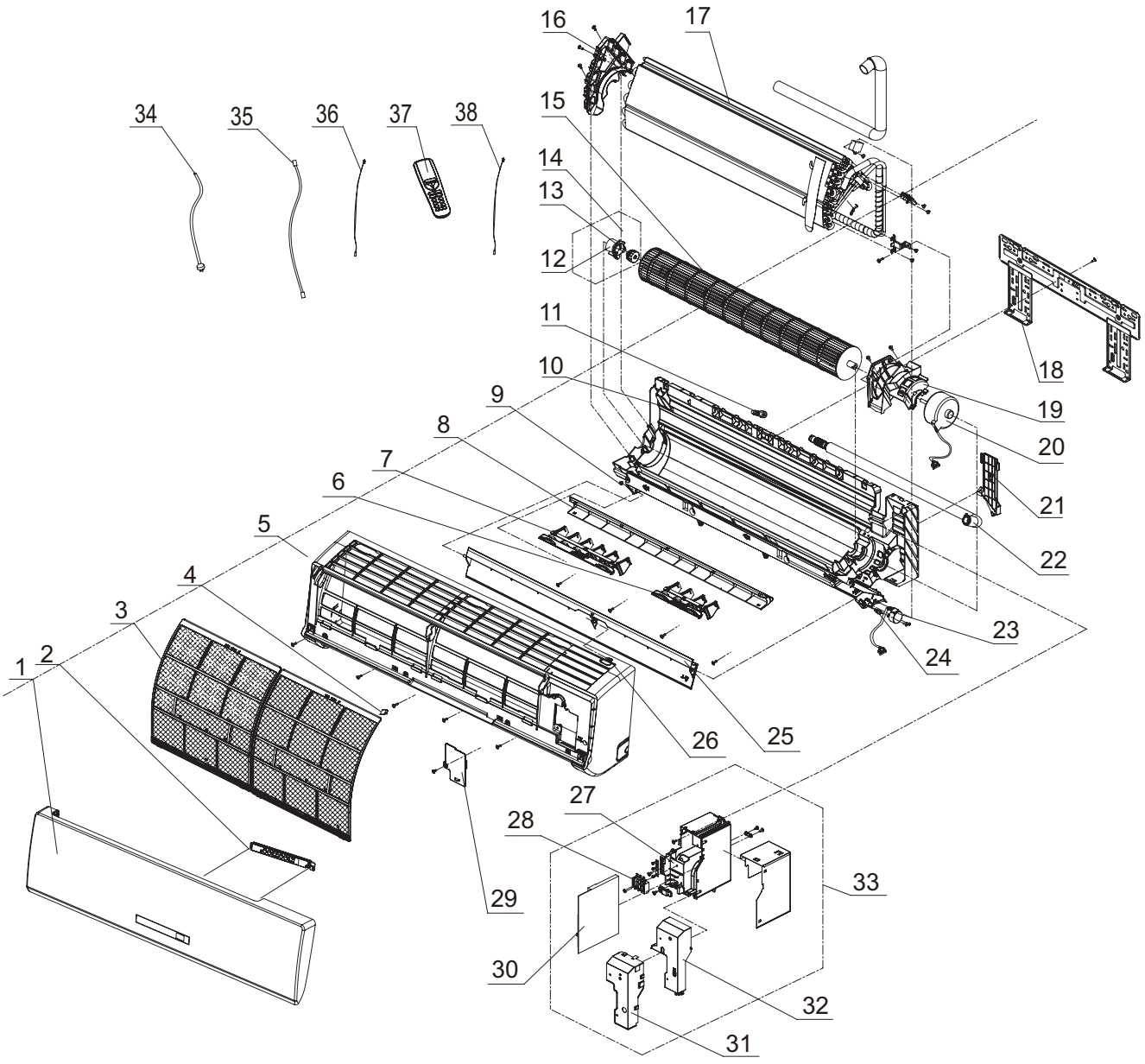
NO.	Description	Part Code		Qty
		GWH09RA-K3DNA1A/I	GWH09RA-K3DNA1B/I	
	Product code	CB144N0023	CB144N00900	
1	Front Panel Assy	20012765	20012671	1
2	Filter Sub-Assy	1112220403	11122206	2
3	Screw Cover	24252016	24252016	1
4	Front Case Sub-assy	20012790	20022232	1
5	Air Louver 1	1051215603	1051211302	1
6	Air Louver 2	1051215503	1051211402	1
7	Helicoid Tongue	2611216302	2611216202	1
8	Left Axile Bush	10512037	10542008	1
9	Rear Case assy	22202467	22202186	1
10	Rubber Plug (Water Tray)	76712012	76712012	1
11	Ring of Bearing	26152022	26152022	1
12	O-Gasket sub-assy of Bearing	76512051	76512051	1
13	Cross Flow Fan	10352017	10352018	1
14	Evaporator Support	24212091	24212090	1
15	Evaporator Assy	01002423	0100255203	1
16	Wall Mounting Frame	01252021	01252015	1
17	Motor Press Plate	26112161	26112160	1
18	Fan Motor	150120874	15012115	1
19	Pipe Clamp	2611216401	2611216401	1
20	Drainage hose	0523001401	0523001406	1
21	Step Motor	1521212901	1521212901	1
22	Crank	10582070	10582070	1
23	Guide Louver	10512203	10512204	1
24	Axile Bush	10542036	10542008	1
25	Electric Box	20112082	2011216701	1
26	Terminal Board	42011233	42011233	1
27	Electric Box Cover2	20122075	20122075	1
28	Display Board	30565110	30565110	1
29	Capacitor CBB61	33010002	33010002	1
30	Jumper	4202300102	4202300102	1
31	Main Board	30138745	30138745	1
32	Shield cover of Electric Box sub-assy	01592073	0159207301	1
33	Electric Box Cover1	20122103	20122103	1
34	Electric Box Assy	2020264401	20302674	1
35	Power Cord	400204649	400204649	1
36	Connecting Cable	400204055	40020538	1
37	Ambient Temperature Sensor	390000451	390000451	1
38	Remote Controller	30510125	30510125	1
39	Tube Sensor	390000591	390000591	1

The data above are subject to change without notice.

NO.	Description	Part Code		Qty
		GWH12RB-K3DNA1B/I	GWH12RB-K3DNA2B/I	
	Product code	CB144N01000	CB301N00900	
1	Front Panel Assy	20012765	20022122	1
2	Filter Sub-Assy	1112220403	1112220403	2
3	Screw Cover	24252016	242520179	1
4	Front Case Sub-assy	20012790	2001279001	1
5	Air Louver 1	1051215603	1051215603	1
6	Air Louver 2	1051215503	1051215503	1
7	Helicoid Tongue	2611216302	2611216302	1
8	Left Axile Bush	10512037	10512037	1
9	Rear Case assy	22202467	22202467	1
10	Rubber Plug (Water Tray)	76712012	76712012	1
11	Ring of Bearing	26152022	26152022	1
12	O-Gasket sub-assy of Bearing	76512051	76512051	1
13	Cross Flow Fan	10352044	10352017	1
14	Evaporator Support	24212091	24212091	1
15	Evaporator Assy	01002321	01002321	1
16	Wall Mounting Frame	01252021	01252021	1
17	Motor Press Plate	26112161	26112161	1
18	Fan Motor	150120874	150120874	1
19	Pipe Clamp	2611216401	2611216401	1
20	Drainage hose	0523001401	0523001401	1
21	Step Motor	1521212901	1521212901	1
22	Crank	10582070	10582070	1
23	Guide Louver	10512203	1051220301	1
24	Axile Bush	10542008	10542036	1
25	Electric Box	2011216701	2011216701	1
26	Terminal Board	42011233	42011233	1
27	Electric Box Cover2	20122075	2012207512	1
28	Display Board	30565110	30565120	1
29	Capacitor CBB61	33010002	33010002	1
30	Jumper	4202300104	4202300104	1
31	Main Board	30138745	30138745	1
32	Shield cover of Electric Box sub-assy	0159207301	0159207301	1
33	Electric Box Cover1	20122103	20122103	1
34	Electric Box Assy	20302675	20402018	1
35	Power Cord	400204649	400204649	1
36	Connecting Cable	40020538	40020538	1
37	Ambient Temperature Sensor	390000451	390000451	1
38	Remote Controller	30510125	30510125	1
39	Tube Sensor	390000591	390000591	1

The data above are subject to change without notice.

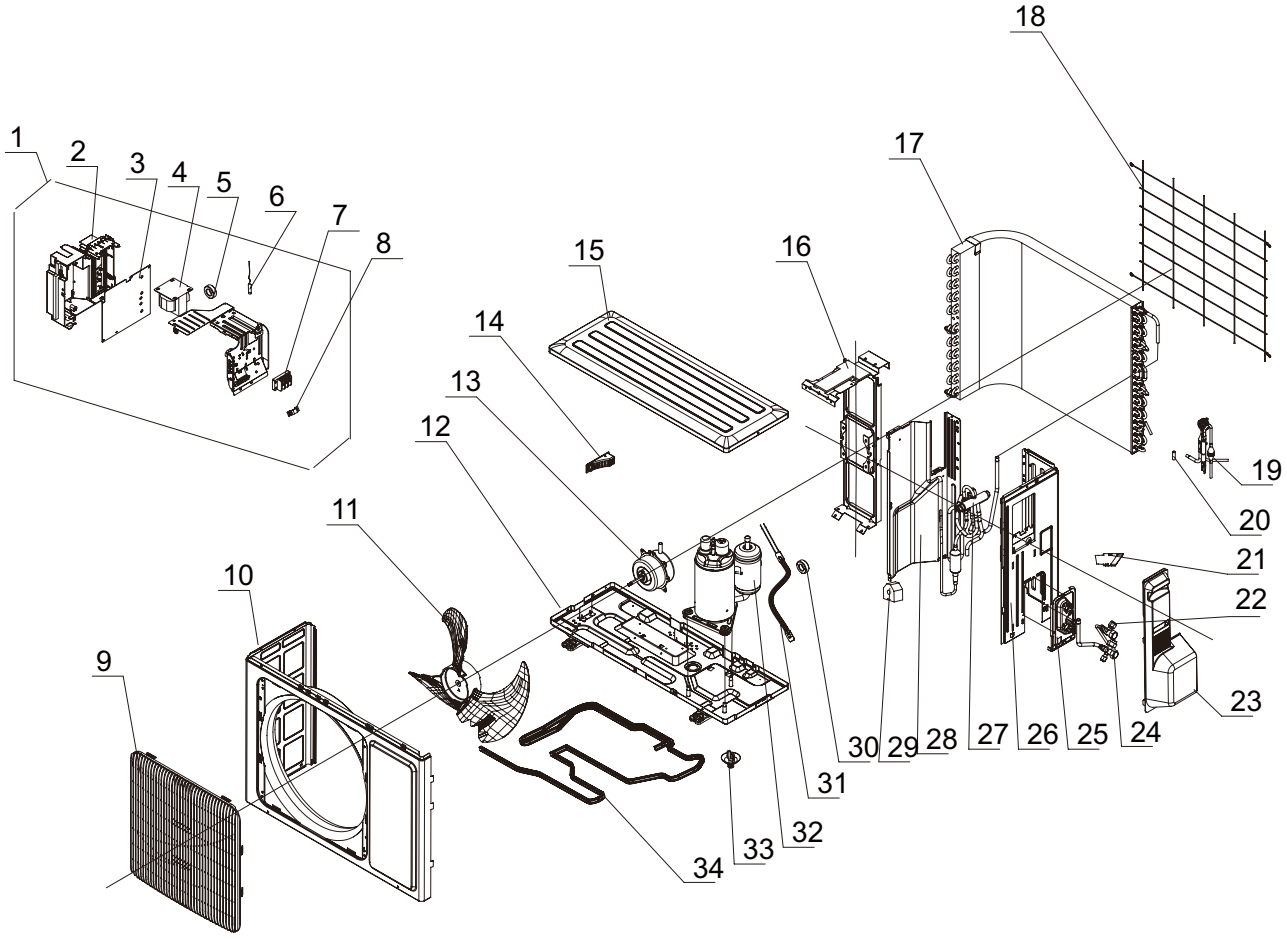
GWH09RA-K3DNA4B/I, GWH12RB-K3DNA4B/I



NO.	Description	Part Code		Qty
		GWH09RA-K3DNA4B/I	GWH12RB-K3DNA4B/I	
	Product Code	CB303N00600	CB303N00500	
1	Front Panel Assy	2001270502	2001280002	1
2	Display Board	30565229	30565229	1
3	Filter Sub-Assy	11122206	1112220403	2
4	Screw Cover	24252016	24252016	1
5	Front Case Sub-assy	20022232	20012790	1
6	Air Louver 1	1051211302	1051215603	1
7	Air Louver 2	1051211402	1051215503	1
8	Helicoid Tongue	2611216202	2611216302	1
9	Left Axile Bush	22202186	10512037	1
10	Rear Case assy	22202186	22202467	1
11	Rubber Plug (Water Tray)	76712012	76712012	1
12	Ring of Bearing	26152022	26152022	1
13	O-Gasket of Cross Fan Bearing	76512203	76512203	1
14	O-Gasket sub-assy of Bearing	76512051	76512051	1
15	Cross Flow Fan	10352018	10352044	1
16	Evaporator Support	24212090	24212091	1
17	Evaporator Assy	0100255203	01002321	1
18	Wall Mounting Frame	01252015	01252021	1
19	Motor Press Plate	26112160	26112161	1
20	Fan Motor	15012115	150120874	1
21	Pipe Clamp	2611216401	2611216401	1
22	Drainage Hose	0523001406	0523001401	1
23	Step Motor	1521212901	1521212901	1
24	Crank	10582070	10582070	1
25	Guide Louver	10512204	10512203	1
26	Axile Bush	10542704	10542036	1
27	Electric Box	2011216701	2011216701	1
28	Terminal Board	42011233	42010268	1
29	Electric Box Cover2	20122075	20122075	1
30	Main Board	30138745	30138745	1
31	Shield Cover of Electric Box Sub-assy	0159207301	0159207301	1
32	Electric Box Cover1	20122103	20122103	1
33	Electric Box Assy	20302997	20402006	1
34	Power Cord	400204649	400204649	1
35	Connecting Cable	40020538	40020538	0
36	Ambient Temperature Sensor	390000451	390000453	1
37	Remote Controller	30510125	30510125	1
38	Temperature Sensor	390000591	390000591	1

The data above are subject to change without notice.

8.2 Outdoor Unit



NO.	Description	Part Code		Qty
		GWH09RA-K3DNA1A/O	GWH09MA-K3DNA3B/O	
	Product Code	CB144W0021	CB171W0191	
1	Electric Box Assy	0261310502	02613041	1
2	Electric Box Sub-Assy	0261310602	02613055	1
3	Main Board	30148407	30148387	1
4	Reactor	43130184	43130184	1
5	Magnetic Ring	49010104	49010109	1
6	Temperature Sensor	3900030804	3900030804	1
7	Terminal Board	42011113	42011113	1
8	Wire Clamp	71010003	71010003	1
9	Front Grill	22413433	22413433	1
10	Front Panel	01533034P	01533034P	1
11	Axial Flow Fan	10333004	10333004	1
12	Chassis Sub-assy	02803105P	0280310501P	1
13	Brushless DC Motor	1501308502	15013076	1
14	Small Handle	26233100	26233100	1
15	Top Cover Sub-Assy	01253454	01253454	1
16	Motor Support	0170310401	01703102	1
17	Condenser Assy	01163537	01163499	1
18	Rear Grill	01473009	01473009	1
19	Capillary Sub-assy	03063750	03063974	1
20	Temp Sensor Sleeving	05212423	05212423	1
21	Valve Support shelves	26113014	26113014	2
22	Cut off Valve	07133082	07133082	1
23	Big Handle	26233433	26233433	1
24	Cut off Valve Assy	07133691	07133691	1
25	Valve Support	0171314201P	0171314201P	1
26	Right Side Plate Sub-Assy	0130317801	0130317801	1
27	4-Way Valve Assy	03123898	03123897	1
28	Clapboard Sub-Assy	01233385	01233385	1
29	Magnet Coil	4300040050	4300040050	1
30	Magnetic Ring	49010109	49010104	1
31	Electric Heater(Compressor)	76513004	76513004	1
32	Compressor and Fittings	00103869G	00103869G	1
33	Drainage Connecter	06123401	06123401	1
34	Electrical Heater (Chassis)	76510004	76510004	1

The data above are subject to change without notice.

NO.	Description	Part Code	Qty
		GWH12MB-K3DNA3B/O	
	Product Code	CB171W0212	
1	Electric Box Assy	02613040	1
2	Electric Box Sub-Assy	02613054	1
3	Main Board	30148407	1
4	Reactor	43130184	1
5	Magnetic Ring	49010104	1
6	Temperature Sensor	3900030804	1
7	Terminal Board	42011113	1
8	Wire Clamp	71010003	1
9	Front Grill	22413433	1
10	Front Panel	01533034P	1
11	Axial Flow Fan	10333004	1
12	Chassis Sub-assy	02803105P	1
13	Brushless DC Motor	15013076	1
14	Small Handle	26233100	1
15	Top Cover Sub-Assy	01253454	1
16	Motor Support	0170310401	1
17	Condenser Assy	01163500	1
18	Rear Grill	01473009	1
19	Capillary Sub-assy	03063750	1
20	Temp Sensor Sleeving	05212423	1
21	Valve Support shelves	26113014	2
22	Cut off Valve	07133082	1
23	Big Handle	26233433	1
24	Cut off Valve Assy	07133691	1
25	Valve Support	0171314201P	1
26	Right Side Plate Sub-Assy	0130317801	1
27	4-Way Valve Assy	03123898	1
28	Clapboard Sub-Assy	01233385	1
29	Magnet Coil	4300040050	1
30	Magnetic Ring	49010109	1
31	Electric Heater(Compressor)	76513004	1
32	Compressor and Fittings	00103869G	1
33	Drainage Connecter	06123401	1
34	Electrical Heater (Chassis)	76510004	1

The data above are subject to change without notice.

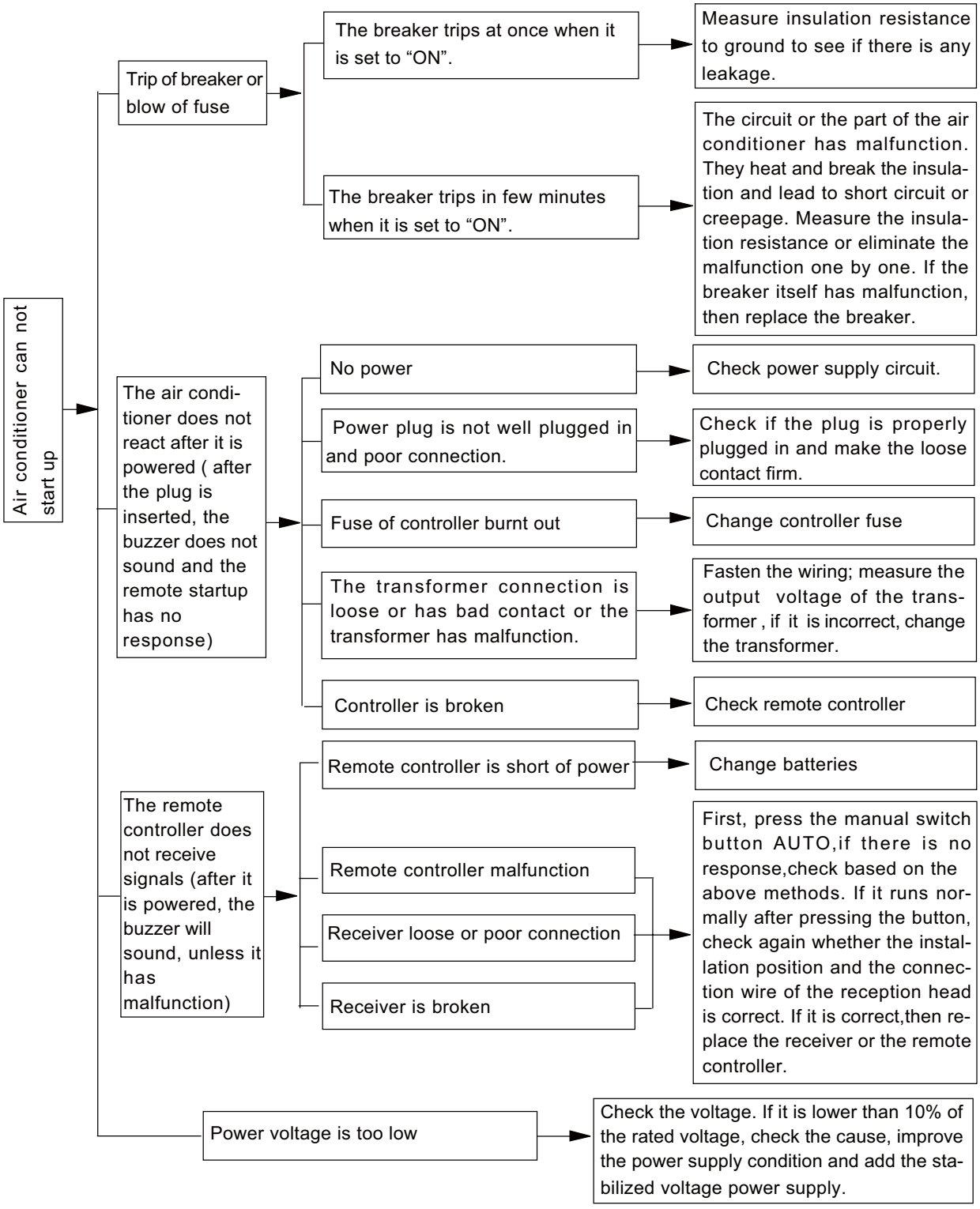
NO.	Description	Part Code		Qty
		GWH09MA-K3DNA3B/O	GWH12MB-K3DNA3B/O	
	Product Code	CB171W0192	CB171W0213	
1	Electric Box Assy	0261310506	0261310508	1
2	Electric Box Sub-Assy	0261310606	0261310608	1
3	Main Board	30148399	30148389	1
4	Reactor	43130184	43130184	1
5	Magnetic Ring	49010109	49010109	1
6	Temperature Sensor	3900030804	3900030804	1
7	Terminal Board	42011113	42011113	1
8	Wire Clamp	71010003	71010003	1
9	Front Grill	22413433	22413433	1
10	Front Panel	01533034P	01533034P	1
11	Axial Flow Fan	10333004	10333004	1
12	Chassis Sub-assy	0280308201P	02803082P	1
13	Brushless DC Motor	15013076	15013076	1
14	Small Handle	26233100	26233100	1
15	Top Cover Sub-Assy	01253073	01253073	1
16	Motor Support	01703102	0170310401	1
17	Condenser Assy	01163499	01163500	1
18	Rear Grill	01473009	01473009	1
19	Capillary Sub-assy	03063974	03063982	1
20	Temp Sensor Sleeving	05212423	05212423	1
21	Valve Support shelves	0171314201P	0171314201P	2
22	Cut off Valve	07133082	07133082	1
23	Big Handle	26233433	26233433	1
24	Cut off Valve Assy	07133691	07133691	1
25	Valve Support	0171314201P	0171314201P	1
26	Right Side Plate Sub-Assy	0130317801	0130317801	1
27	4-Way Valve Assy	03123897	03123898	1
28	Clapboard Sub-Assy	01233385	01233385	1
29	Magnet Coil	4300040050	4300040050	1
30	Magnetic Ring	49010104	49010104	1
31	Electric Heater(Compressor)	/	/	/
32	Compressor and Fittings	00103869G	00103869G	1
33	Drainage Connecter	06123401	06123401	1
34	Electrical Heater (Chassis)	/	/	/

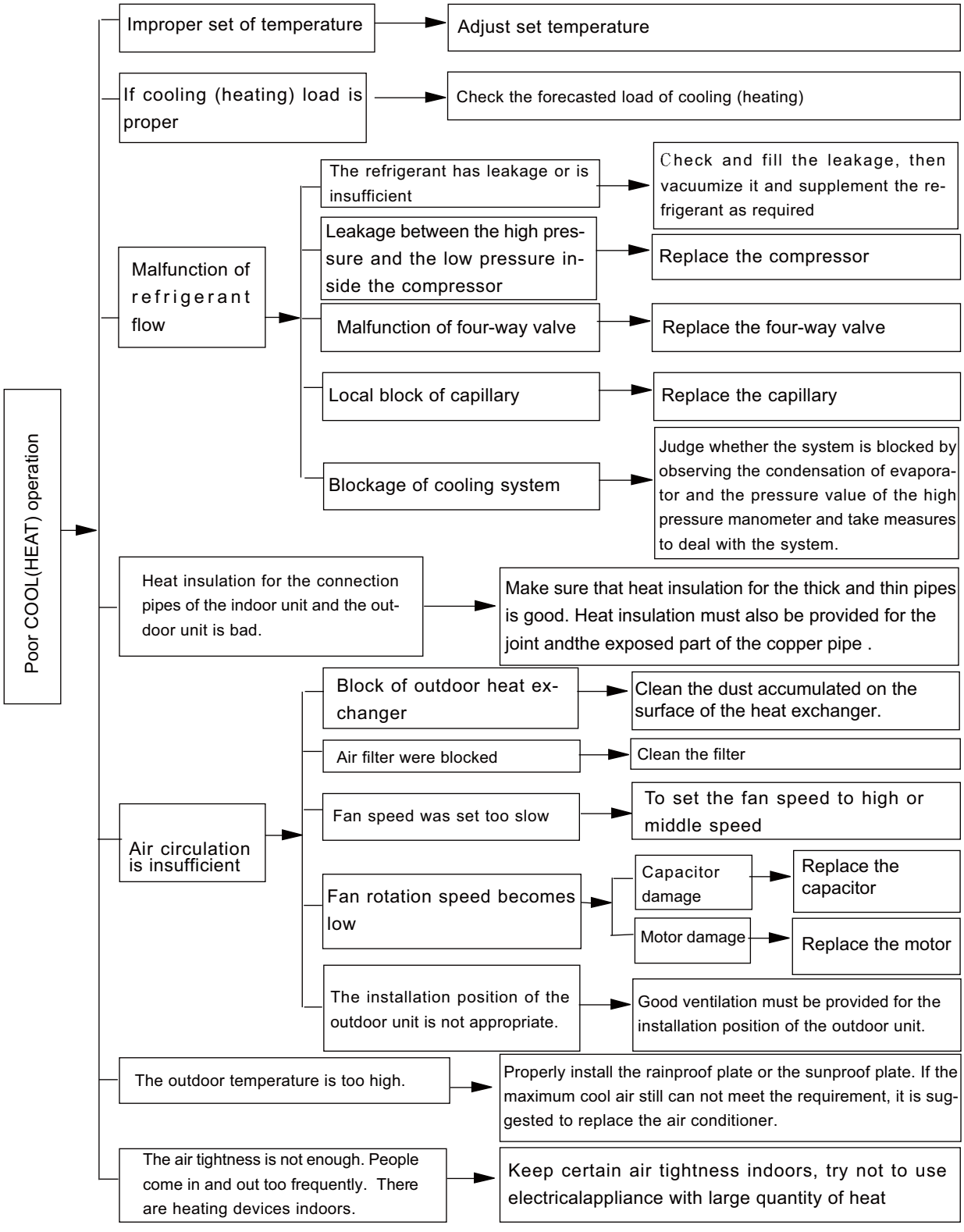
The data above are subject to change without notice.

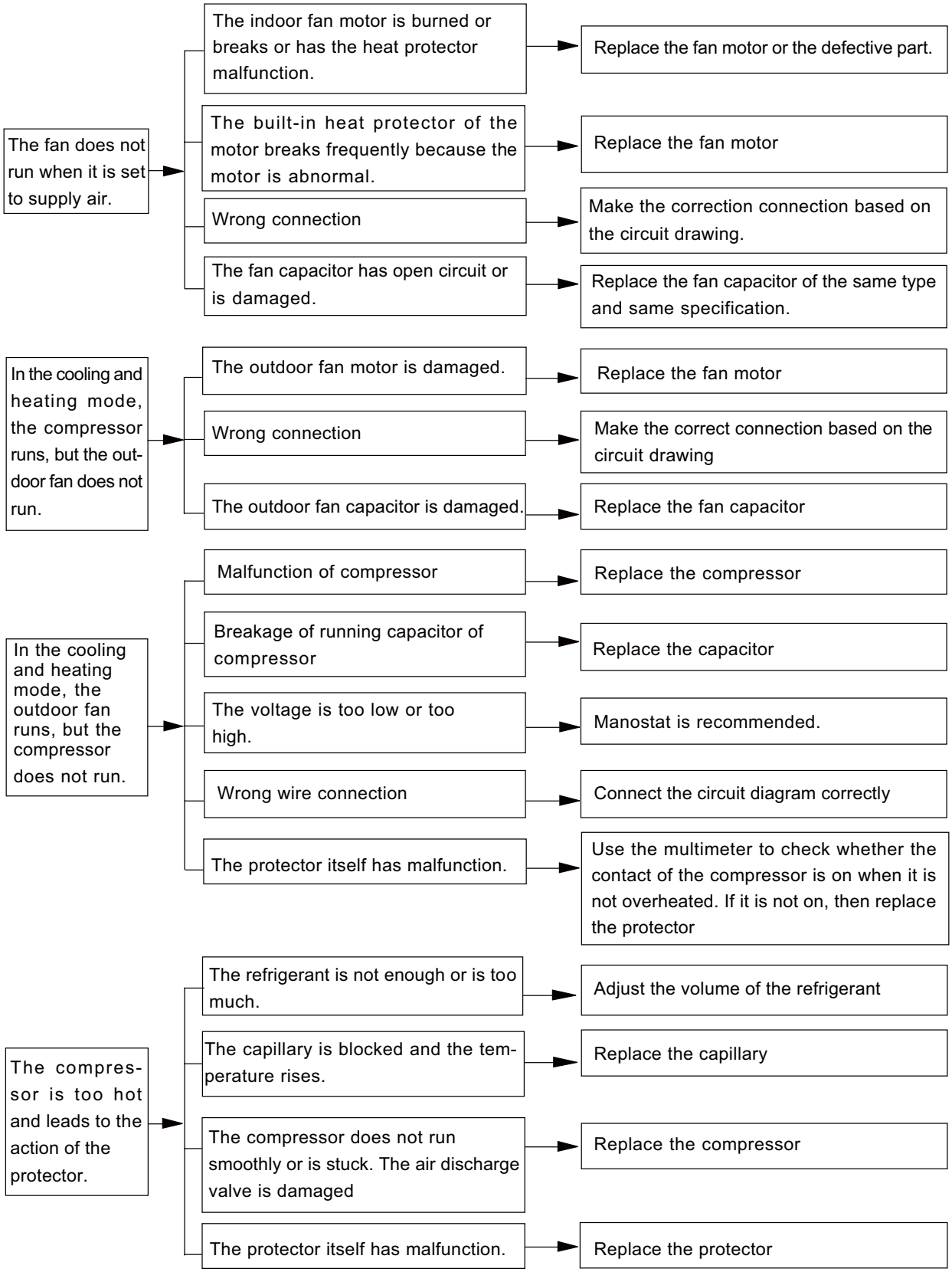
9. Troubleshooting

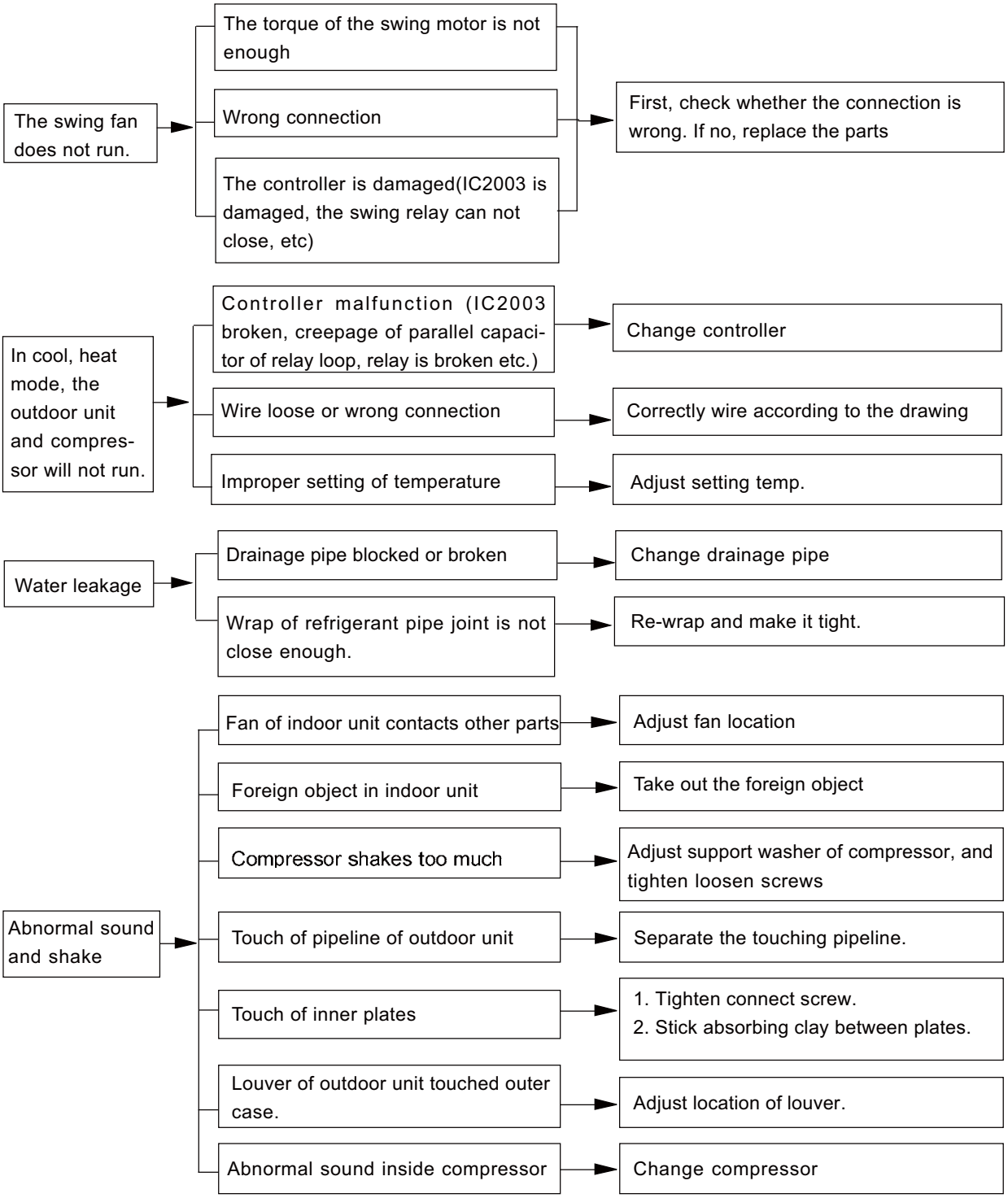
9.1 Malfunction Analysis

Note:When replacing the controller, make sure insert the wire jumper into the new controller, otherwire the unit will display C5.


Air conditioner can not start up
Trip of breaker or blow of fuse
The breaker trips at once when it is set to “ON”.
Measure insulation resistance to ground to see if there is any leakage.
The breaker trips in few minutes when it is set to “ON”.
The circuit or the part of the air conditioner has malfunction. They heat and break the insulation and lead to short circuit or creepage. Measure the insulation resistance or eliminate the malfunction one by one. If the breaker itself has malfunction, then replace the breaker.
The air conditioner does not react after it is powered (after the plug is inserted, the buzzer does not sound and the remote startup has no response)
No power
Check power supply circuit.
Power plug is not well plugged in and poor connection.
Check if the plug is properly plugged in and make the loose contact firm.
Fuse of controller burnt out
Change controller fuse
The transformer connection is loose or has bad contact or the transformer has malfunction.
Fasten the wiring; measure the output voltage of the transformer , if it is incorrect, change the transformer.
Controller is broken
Check remote controller
The remote controller does not receive signals (after it is powered, the buzzer will sound, unless it has malfunction)
Remote controller is short of power
Change batteries
Remote controller malfunction
Receiver loose or poor connection
Receiver is broken
First, press the manual switch button AUTO,if there is no response,check based on the above methods. If it runs normally after pressing the button, check again whether the installation position and the connection wire of the reception head is correct. If it is correct,then replace the receiver or the remote controller.
Power voltage is too low
Check the voltage. If it is lower than 10% of the rated voltage, check the cause, improve the power supply condition and add the stabilized voltage power supply.


Poor COOL(HEAT) operation
Improper set of temperature
Adjust set temperature
If cooling (heating) load is proper
Check the forecasted load of cooling (heating)
Malfunction of refrigerant flow
The refrigerant has leakage or is insufficient
Check and fill the leakage, then vacuumize it and supplement the refrigerant as required
Leakage between the high pressure and the low pressure inside the compressor
Replace the compressor
Malfunction of four-way valve
Replace the four-way valve
Local block of capillary
Replace the capillary
Blockage of cooling system
Judge whether the system is blocked by observing the condensation of evaporator and the pressure value of the high pressure manometer and take measures to deal with the system.
Heat insulation for the connection pipes of the indoor unit and the outdoor unit is bad.
Make sure that heat insulation for the thick and thin pipes is good. Heat insulation must also be provided for the joint andthe exposed part of the copper pipe .
Air circulation is insufficient
Block of outdoor heat exchanger
Clean the dust accumulated on the surface of the heat exchanger.
Air filter were blocked
Clean the filter
Fan speed was set too slow
To set the fan speed to high or middle speed
Fan rotation speed becomes low
Capacitor damage
Replace the capacitor
Motor damage
Replace the motor
The installation position of the outdoor unit is not appropriate.
Good ventilation must be provided for the installation position of the outdoor unit.
The outdoor temperature is too high.
Properly install the rainproof plate or the sunproof plate. If the maximum cool air still can not meet the requirement, it is suggested to replace the air conditioner.
The air tightness is not enough. People come in and out too frequently. There are heating devices indoors.
Keep certain air tightness indoors, try not to use electricalappliance with large quantity of heat


The fan does not run when it is set to supply air.
The indoor fan motor is burned or breaks or has the heat protector malfunction.
Replace the fan motor or the defective part.
The built-in heat protector of the motor breaks frequently because the motor is abnormal.
Replace the fan motor
Wrong connection
Make the correction connection based on the circuit drawing.
The fan capacitor has open circuit or is damaged.
Replace the fan capacitor of the same type and same specification.
In the cooling and heating mode, the compressor runs, but the outdoor fan does not run.
The outdoor fan motor is damaged.
Replace the fan motor
Wrong connection
Make the correct connection based on the circuit drawing
The outdoor fan capacitor is damaged.
Replace the fan capacitor
In the cooling and heating mode, the outdoor fan runs, but the compressor does not run.
Malfunction of compressor
Replace the compressor
Breakage of running capacitor of compressor
Replace the capacitor
The voltage is too low or too high.
Manostat is recommended.
Wrong wire connection
Connect the circuit diagram correctly
The protector itself has malfunction.
Use the multimeter to check whether the contact of the compressor is on when it is not overheated. If it is not on, then replace the protector
The compressor is too hot and leads to the action of the protector.
The refrigerant is not enough or is too much.
Adjust the volume of the refrigerant
The capillary is blocked and the temperature rises.
Replace the capillary
The compressor does not run smoothly or is stuck. The air discharge valve is damaged
Replace the compressor
The protector itself has malfunction.
Replace the protector


The swing fan does not run.
The torque of the swing motor is not enough
Wrong connection
The controller is damaged(IC2003 is damaged, the swing relay can not close, etc)
First, check whether the connection is wrong. If no, replace the parts
In cool, heat mode, the outdoor unit and compressor will not run.
Controller malfunction (IC2003 broken, creepage of parallel capacitor of relay loop, relay is broken etc.)
Change controller
Wire loose or wrong connection
Correctly wire according to the drawing
Improper setting of temperature
Adjust setting temp.
Water leakage
Drainage pipe blocked or broken
Change drainage pipe
Wrap of refrigerant pipe joint is not close enough.
Re-wrap and make it tight.
Abnormal sound and shake
Fan of indoor unit contacts other parts
Adjust fan location
Foreign object in indoor unit
Take out the foreign object
Compressor shakes too much
Adjust support washer of compressor, and tighten loosen screws
Touch of pipeline of outdoor unit
Separate the touching pipeline.
Touch of inner plates
1. Tighten connect screw.
2. Stick absorbing clay between plates.
Louver of outdoor unit touched outer case.
Adjust location of louver.
Abnormal sound inside compressor
Change compressor

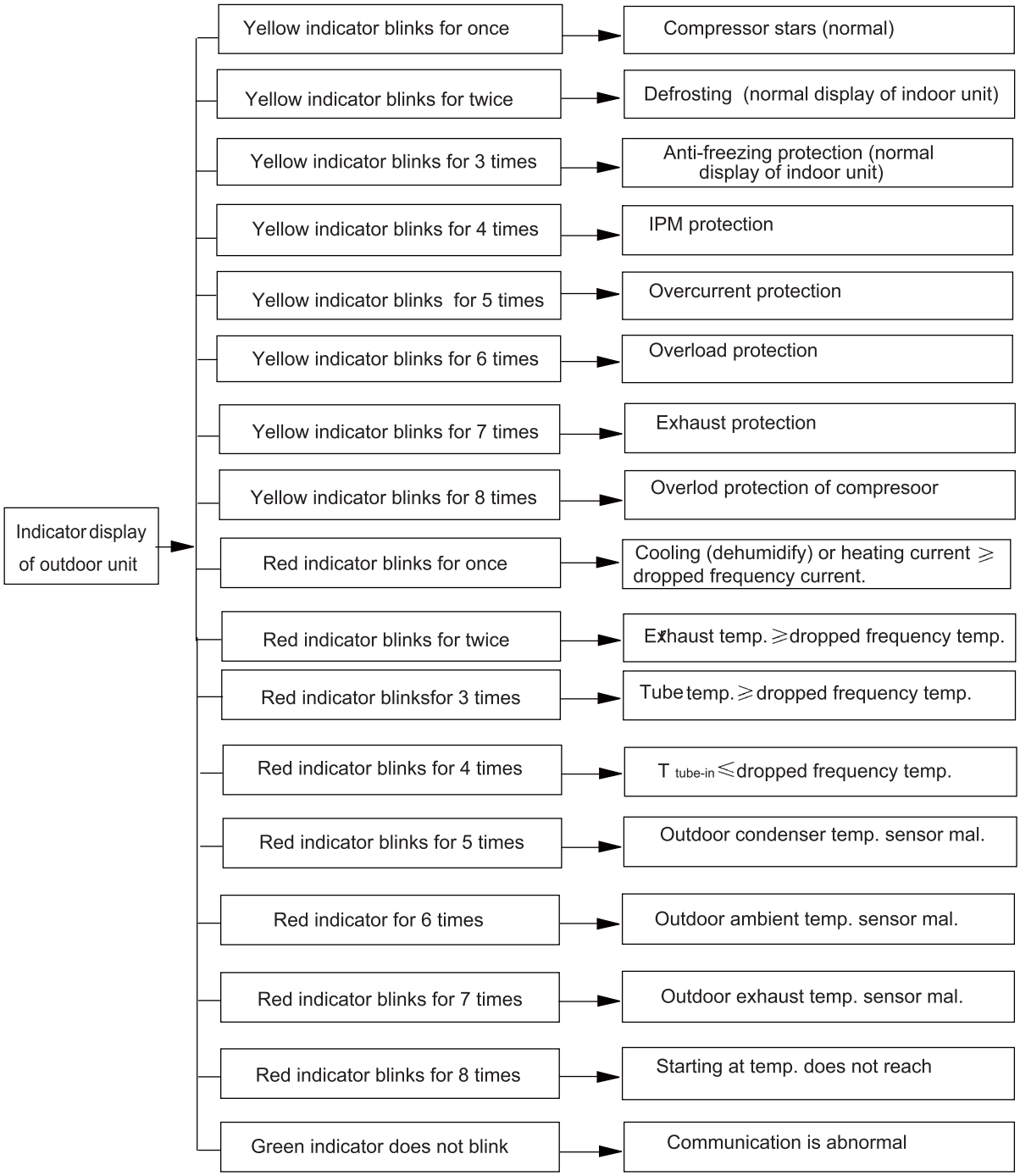
9.2 Malfunction Code

Flashing LED of Indoor/Outdoor Unit and Primary Judgement

	Name of Operation Status	Yellow LED	Red LED	Green LED	Display on IDU
1	Compressure operates	Blink once			
2	Defrosting	Blink twice			H1
3	Freeze prevention protection	Blink for 3 times			E2
4	IPM protection	Blink for 4 times			H5(displayed after it occurs for successively 6 times)
5	Overcurrent protection	Blink for 5 times			E5
6	Overload protection	Blink for 6 times			H4
7	Discharge protection	Blink for 7 times			E4
8	Overload protection	Blink for 8 times			H3
9	Capacity power protection	Blink for 9 times			L9
10	Read-write malfunction of EEPROM	Blink for 11 times			
11	Low-voltage protection	Blink for 12 times			PL
12	High-voltage protection	Blink for 13 times			PH
13	PFC overcurrent protection	Blink for 14 times			HC
14	Models of IDU and ODU don't not match	Blink for 16 times			LP
15	Limit frequency(current)		Blink once		
16	Limit frequency(discharge)		Blink twice		
17	Limit frequency(overload)		Blink for 3 times		
18	Limit frequency(freeze prevention)		Blink for 4 times		
19	Malfunction of outdoor ambient temp sensor		Blink for 6 times		F3
20	Malfunction of outdoor pipe temp sensor		Blink for 5 times		F4
21	Malfunction of outdoor discharge temp sensor		Blink for 7 times		F5
22	Temperature for operation of the unit is reached.		Blink for 8 times		
23	Limit frequency(power)		Blink for 13 times		
24	Protection of fan		Blink for 14 times		
25	Normal communication			Continuously blink	
26	Malfunction of communication			Off	E6
27	Malfunction of indoor ambient temp sensor				F1
28	Malfunction of indoor pipe temp sensor				F2

Malfunction Display

If malfunction occurs,corresponding code will display and the unit will resume normal until protection or malfunction disappears.


Indicator display of outdoor unit
Yellow indicator blinks for once
Compressor stars (normal)
Yellow indicator blinks for twice
Defrosting (normal display of indoor unit)
Yellow indicator blinks for 3 times
Anti-freezing protection (normal display of indoor unit)
Yellow indicator blinks for 4 times
IPM protection
Yellow indicator blinks for 5 times
Overcurrent protection
Yellow indicator blinks for 6 times
Overload protection
Yellow indicator blinks for 7 times
Exhaust protection
Yellow indicator blinks for 8 times
Overlod protection of compresoor
Red indicator blinks for once
Cooling (dehumidify) or heating current ⩾ dropped frequency current.
Red indicator blinks for twice
Exhaust temp. ⩾dropped frequency temp.
Red indicator blinksfor 3 times
Tube temp. ⩾dropped frequency temp.
Red indicator blinks for 4 times
T tube-in ⩽dropped frequency temp.
Red indicator blinks for 5 times
Outdoor condenser temp. sensor mal.
Red indicator for 6 times
Outdoor ambient temp. sensor mal.
Red indicator blinks for 7 times
Outdoor exhaust temp. sensor mal.
Red indicator blinks for 8 times
Starting at temp. does not reach
Green indicator does not blink
Communication is abnormal

Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

   Possible reasons: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.
   Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

   Possible reason: Sudden drop of supply voltage.

3. Communication malfunction

   Processing method: Check if communication signal cable is connected reliably.

4. Sensor open or short circuit

   Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

5. Compressor overload protection

   Possible reasons: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

   Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

6. System malfunction

   i.e. overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

   Possible reasons: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.
   please refer to the malfunction analysis in the previous section for handling method .

7. IPM module protection

   Processing method:Once the module malfunction happens,if it persists for a long time and can not be self- canceled, cut off the power and turn off the unit,and then re-energize the unit again after about 10 min.After repeating the procedure for sever times, if the malfunction still exists,replace the module.

9.3 How to Check Simply the Main Part

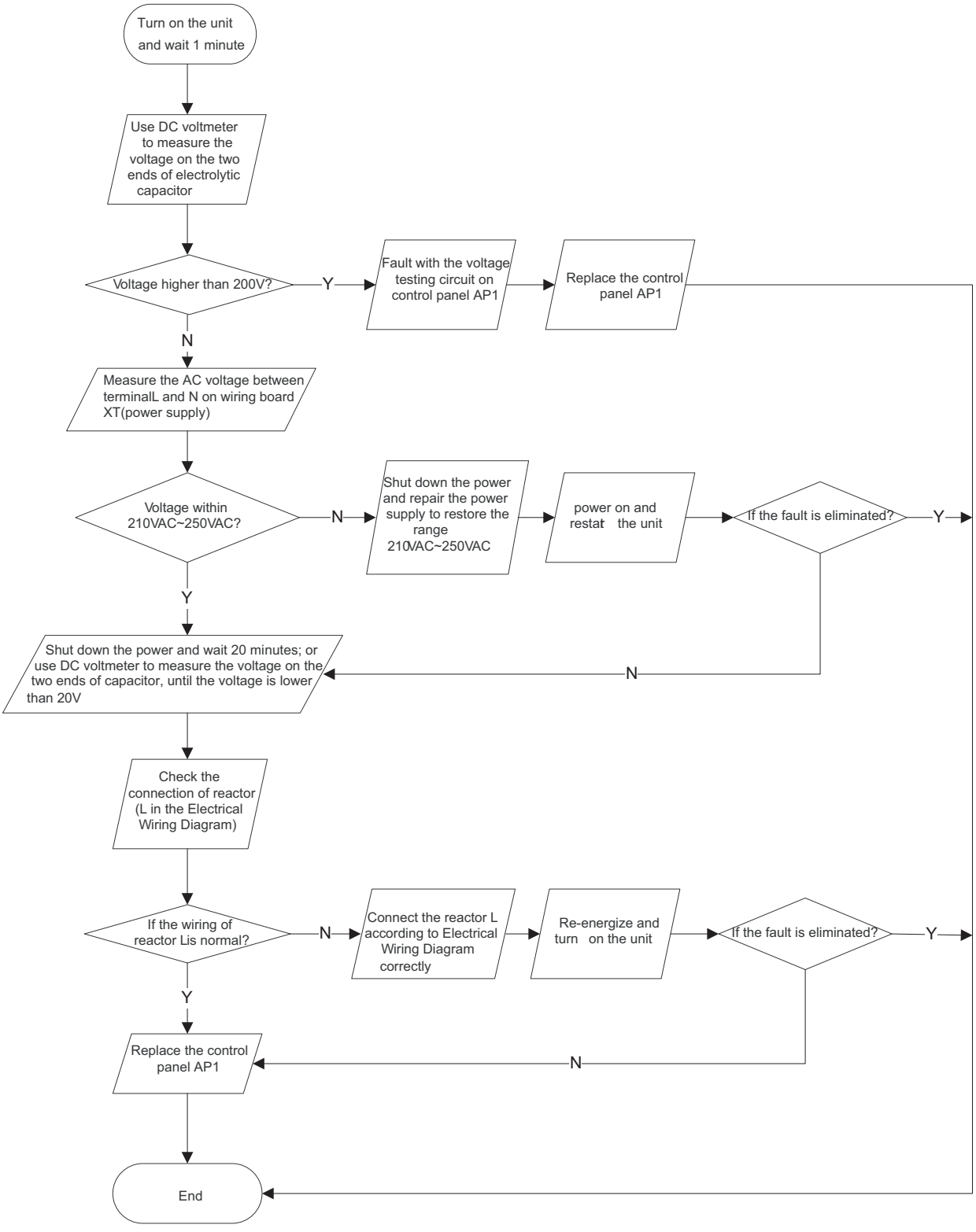
(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Pionts:

Use AC voltmeter to check if the voltage between terminal L and N on the wiring board id within 210VAC~240VAC.

If the reactor (L) is correctly connected? If the connection is loose or fallen? If the reactor (L) is damaged?

Fault diagnosis process:


Turn on the unit and wait 1 minute
Use DC voltmeter to measure the voltage on the two ends of electrolytic capacitor
Voltage higher than 200V?
Y
Fault with the voltage testing circuit on control panel AP1
Replace the control panel AP1
N
Measure the AC voltage between terminalL and N on wiring board XT(power supply)
Voltage within 210VAC~250VAC?
N
Shut down the power and repair the power supply to restore the range 210VAC~250VAC
power on and restat the unit
If the fault is eliminated?
Y
Y
Shut down the power and wait 20 minutes; or use DC voltmeter to measure the voltage on the two ends of capacitor, until the voltage is lower than 20V
N
Check the connection of reactor (L in the Electrical Wiring Diagram)
If the wiring of reactor Lis normal?
N
Connect the reactor L according to Electrical Wiring Diagram correctly
Re-energize and turn on the unit
If the fault is eliminated?
Y
Y
Replace the control panel AP1
N
End

(2) IPM Protection, Out-of step Fault,Compressor Phase Over current(AP1 below refers to the outdoor control panel)

Mainly detect:

● If the connection between control panel AP1 and compressor COMP is secure? If loose? If the connection is in correct order?

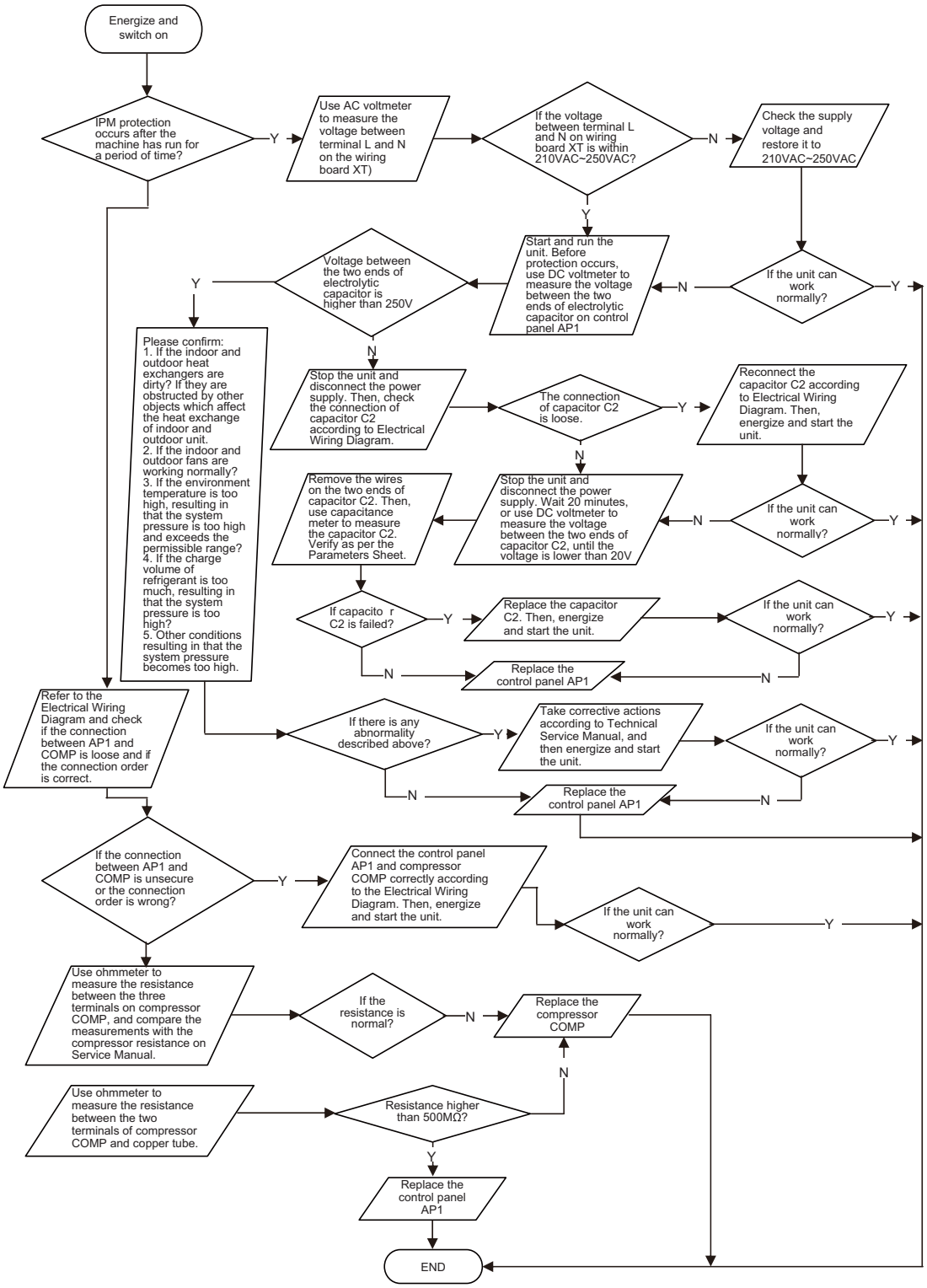
● If the voltage input of the machine is within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)

● If the compressor coil resistance is mormal? If the insulation of compressor coil against the coppertube is in good condition?

● If the working loads of the machine are too high? If the radiation is good?

● If the charge volume of refrigerant is correct?

Fault diagnosis process:


Energize and switch on
IPM protection occurs after the machine has run for a period of time?
Y
Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the voltage between terminal L and N on wiring board XT is within 210VAC~250VAC?
N
Check the supply voltage and restore it to 210VAC~250VAC
Y
Start and run the unit. Before protection occurs, use DC voltmeter to measure the voltage between the two ends of electrolytic capacitor on control panel AP1
N
If the unit can work normally?
Y
Voltage between the two ends of electrolytic capacitor is higher than 250V
Y
N
Please confirm:
1. If the indoor and outdoor heat exchangers are dirty? If they are obstructed by other objects which affect the heat exchange of indoor and outdoor unit.
2. If the indoor and outdoor fans are working normally?
3. If the environment temperature is too high, resulting in that the system pressure is too high and exceeds the permissible range?
4. If the charge volume of refrigerant is too much, resulting in that the system pressure is too high?
5. Other conditions resulting in that the system pressure becomes too high.
Stop the unit and disconnect the power supply. Then, check the connection of capacitor C2 according to Electrical Wiring Diagram.
The connection of capacitor C2 is loose.
Y
Reconnect the capacitor C2 according to Electrical Wiring Diagram. Then, energize and start the unit.
N
Remove the wires on the two ends of capacitor C2. Then, use capacitance meter to measure the capacitor C2. Verify as per the Parameters Sheet.
Stop the unit and disconnect the power supply. Wait 20 minutes, or use DC voltmeter to measure the voltage between the two ends of capacitor C2, until the voltage is lower than 20V
N
If the unit can work normally?
Y
If capacito r C2 is failed?
Y
Replace the capacitor C2. Then, energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
Refer to the Electrical Wiring Diagram and check if the connection between AP1 and COMP is loose and if the connection order is correct.
If there is any abnormality described above?
Y
Take corrective actions according to Technical Service Manual, and then energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
If the connection between AP1 and COMP is unsecure or the connection order is wrong?
Y
Connect the control panel AP1 and compressor COMP correctly according to the Electrical Wiring Diagram. Then, energize and start the unit.
If the unit can work normally?
Y
Use ohmmeter to measure the resistance between the three terminals on compressor COMP, and compare the measurements with the compressor resistance on Service Manual.
If the resistance is normal?
N
Replace the compressor COMP
N
Use ohmmeter to measure the resistance between the two terminals of compressor COMP and copper tube.
Resistance higher than 500MΩ?
Y
Replace the control panel AP1
END

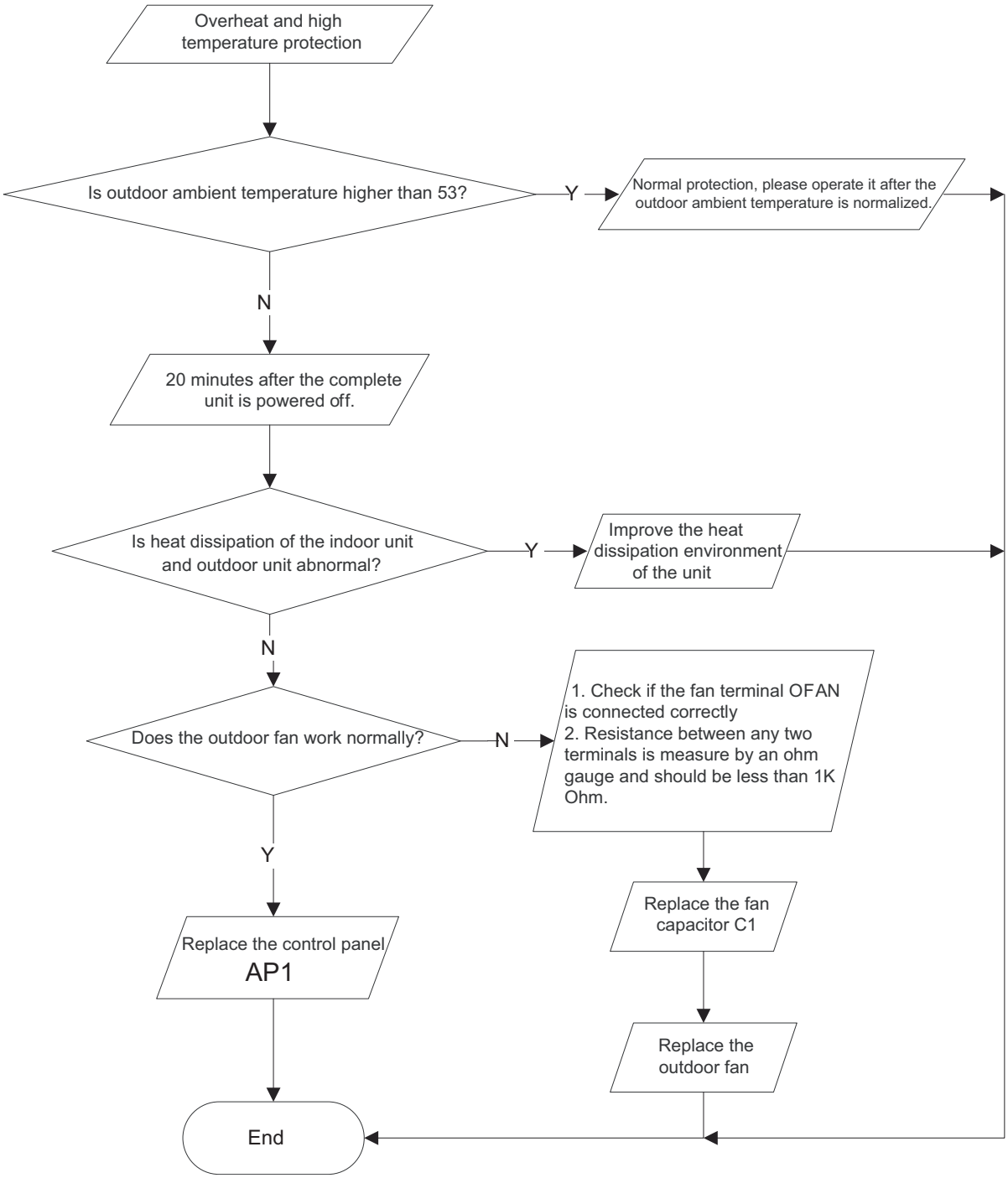
(3) High temperature and overload protection diagnosis (AP1 here in after refers to the control board of the outdoor unit)

Mainly detect:

Is outdoor ambienttemperature in normal range?

After the outdoor and indoor fans operating normally?

Is the heat dissipation environment inside and outside the unit is good?


Overheat and high temperature protection
Is outdoor ambient temperature higher than 53?
Y
Normal protection, please operate it after the outdoor ambient temperature is normalized.
N
20 minutes after the complete unit is powered off.
Is heat dissipation of the indoor unit and outdoor unit abnormal?
Y
Improve the heat dissipation environment of the unit
N
Does the outdoor fan work normally?
N
1. Check if the fan terminal OFAN is connected correctly
2. Resistance between any two terminals is measure by an ohm gauge and should be less than 1K Ohm.
Y
Replace the fan capacitor C1
Replace the control panel AP1
Replace the outdoor fan
End

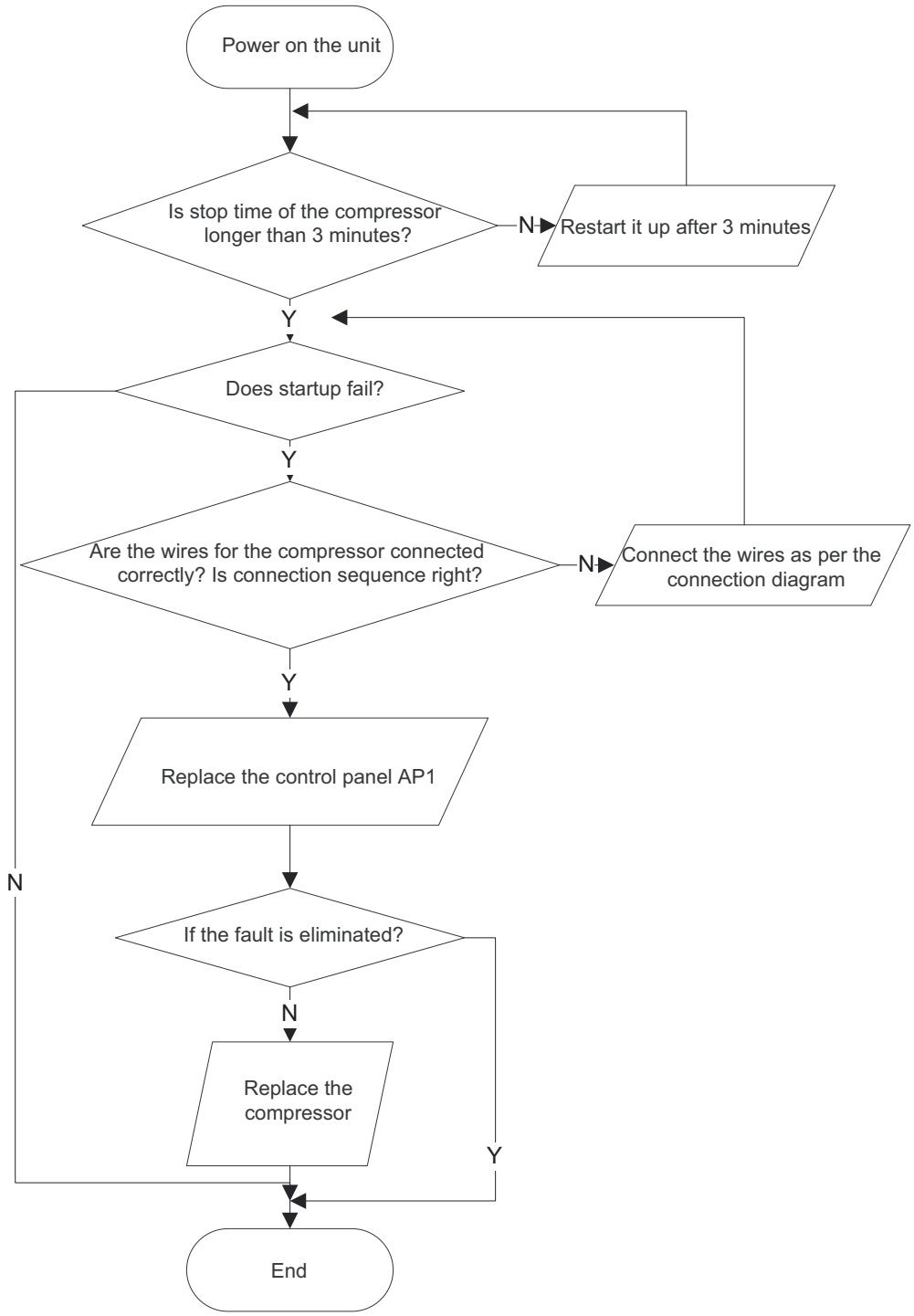
(4) Start-up failure(following AP1 for outdoor unit control board)

Mainly detect:

Whether the compressor wiring is connected correct?

Is time for compressor stopping enough?

Is compressor broken?

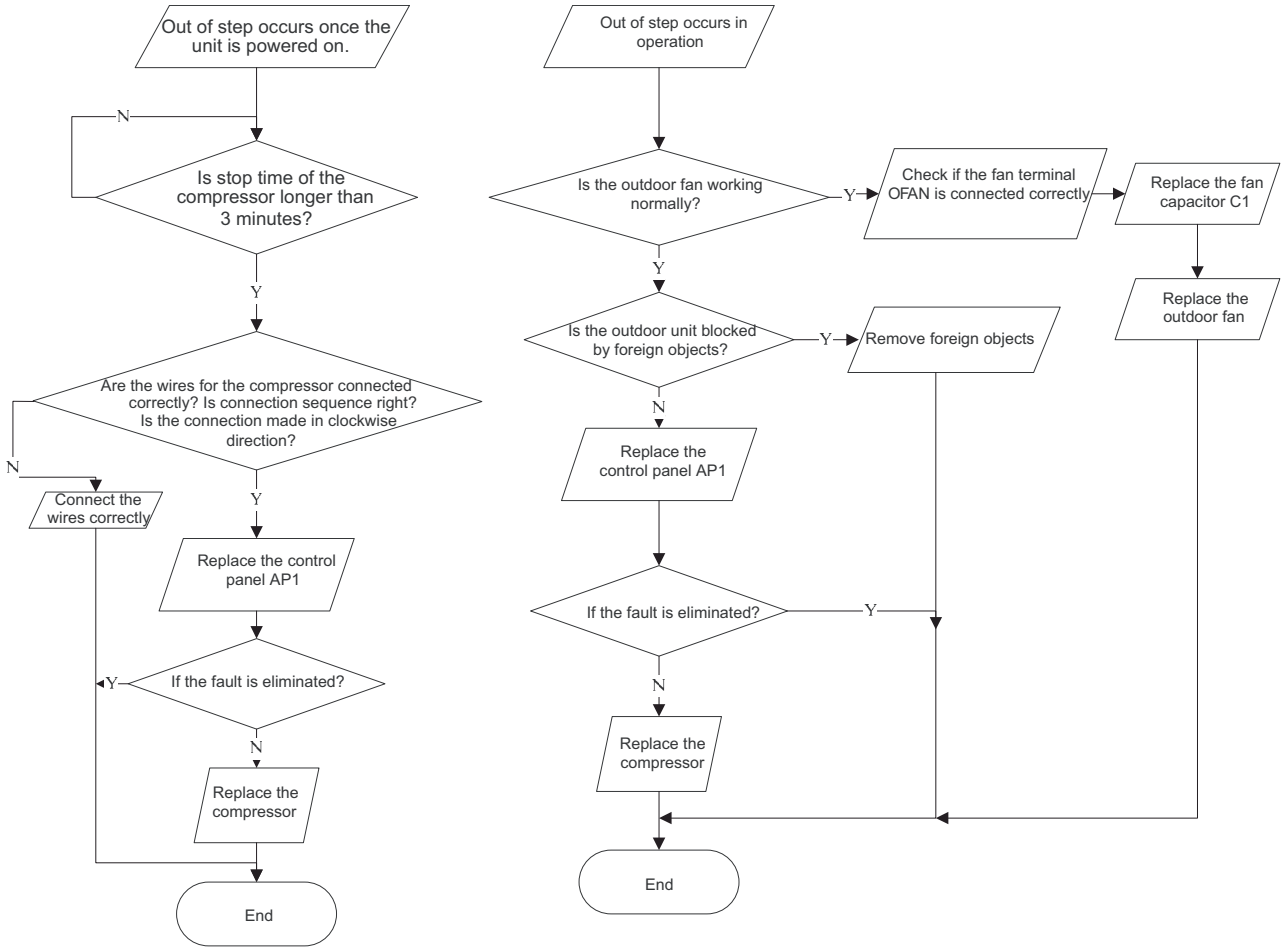


(5) Out of step diagnosis for the compressor (AP1 hereunafter refers ti the control board of the outdoor unit)

Main detect:

Whether the system pressure is too high?

Whether the input voltage is too low?

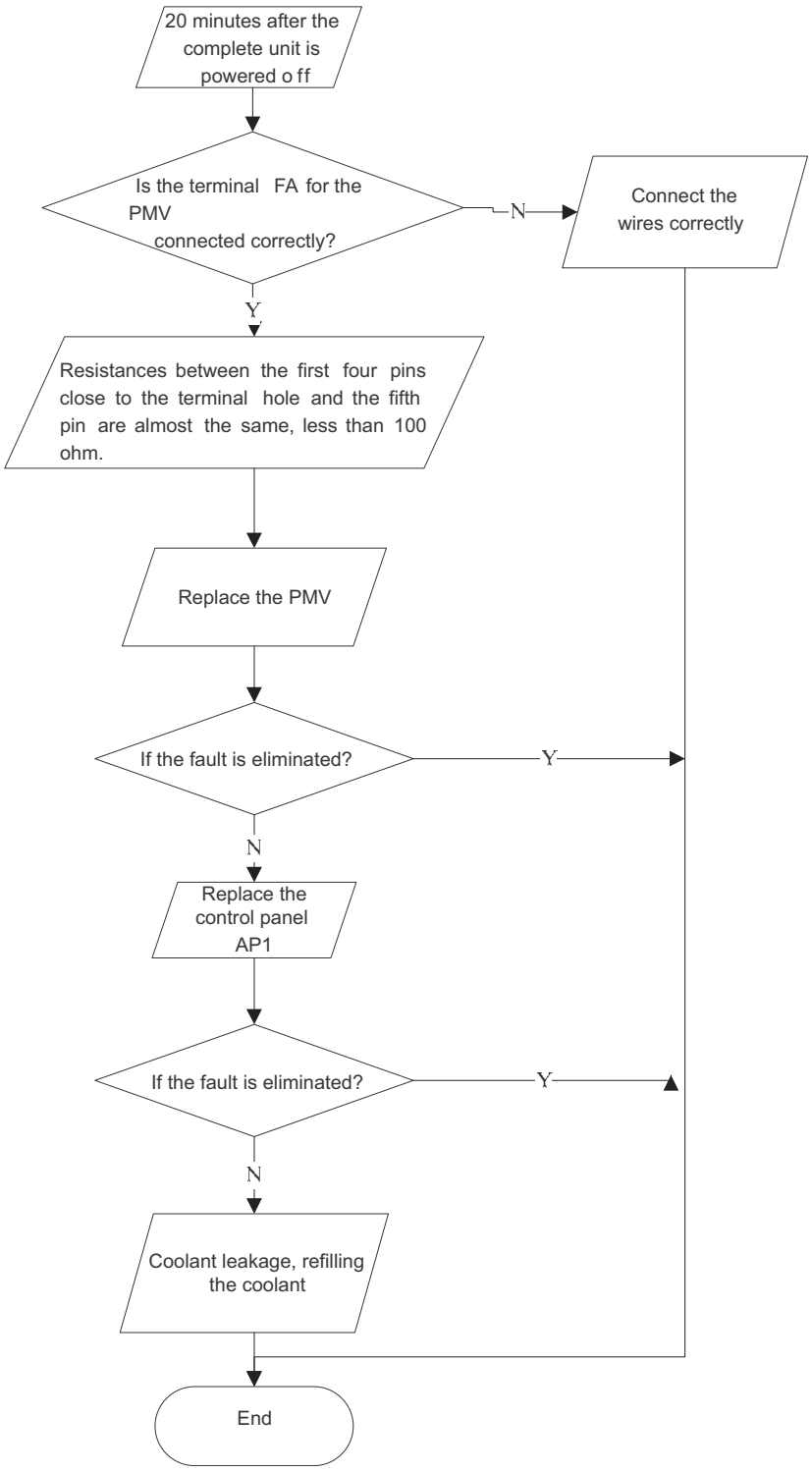

Out of step occurs once the unit is powered on.
N
Is stop time of the compressor longer than 3 minutes?
Y
Are the wires for the compressor connected correctly? Is connection sequence right? Is the connection made in clockwise direction?
N
Connect the wires correctly
Y
Replace the control panel AP1
If the fault is eliminated?
Y
N
Replace the compressor
End
Out of step occurs in operation
Is the outdoor fan working normally?
Y
Check if the fan terminal OFAN is connected correctly
Replace the fan capacitor C1
Replace the outdoor fan
Y
Is the outdoor unit blocked by foreign objects?
Y
Remove foreign objects
N
Replace the control panel AP1
If the fault is eliminated?
Y
N
Replace the compressor
End

(6) Overload and air exhaust malfuntion diagnosis (following AP1 for outdoor unit unit control board)

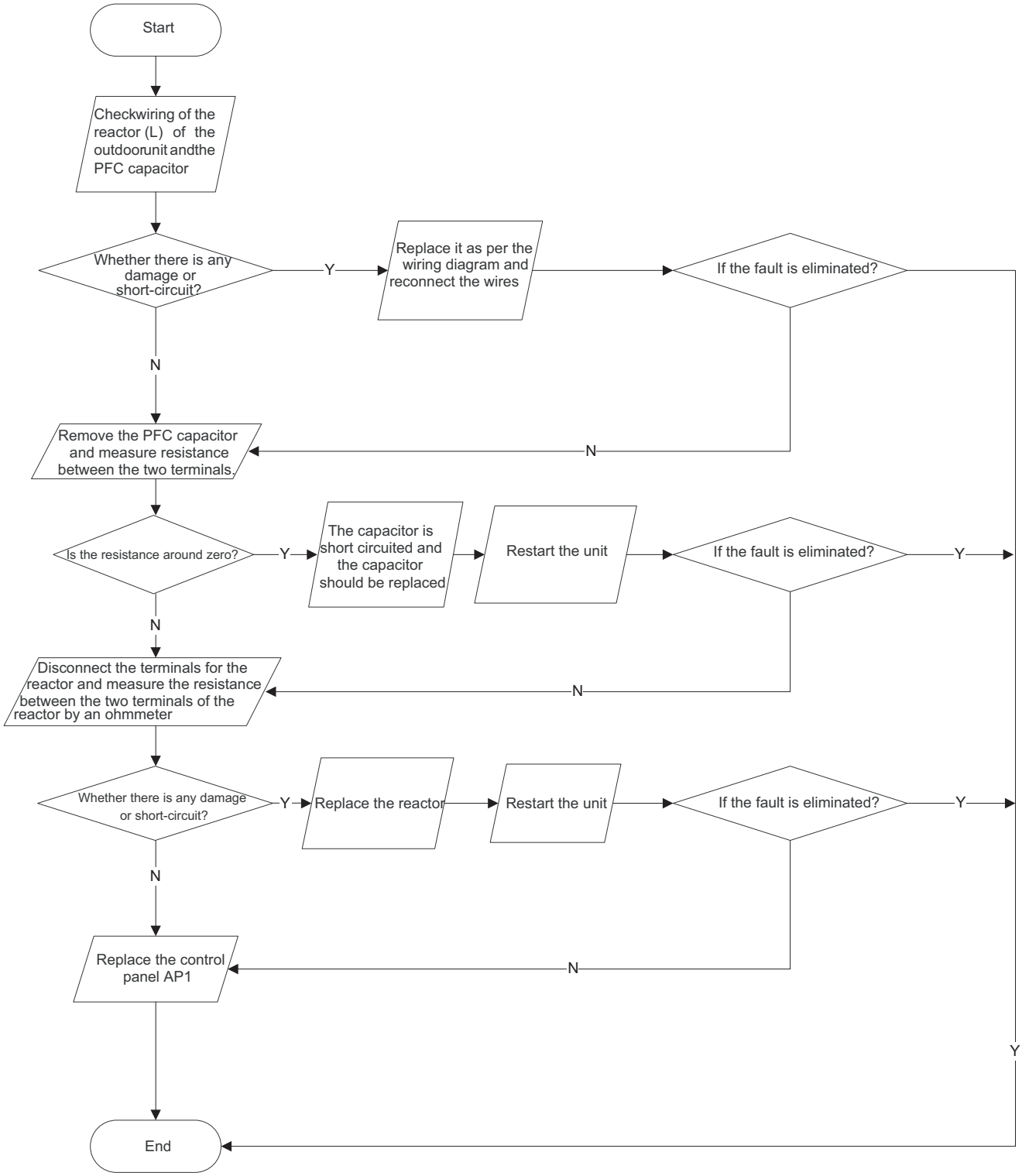
Mainly detect:

Wether the PMV is connected well or not? Is PMV damaged?

Is refrigerant leaked?


20 minutes after the complete unit is powered o ff
Is the terminal FA for the PMV connected correctly?
N
Connect the wires correctly
Y
Resistances between the first four pins close to the terminal hole and the fifth pin are almost the same, less than 100 ohm.
Replace the PMV
If the fault is eliminated?
Y
N
Replace the control panel AP1
If the fault is eliminated?
Y
N
Coolant leakage, refilling the coolant
End

(7) Power factor correct or (PFC) fault (a fault of outdoor unit)(AP1 here in after refers to the control board of the outdoor unit)


Start
Checkwiring of the reactor (L) of the outdoorunit andthe PFC capacitor
Whether there is any damage or short-circuit?
Y
Replace it as per the wiring diagram and reconnect the wires
If the fault is eliminated?
N
Remove the PFC capacitor and measure resistance between the two terminals.
N
Is the resistance around zero?
Y
The capacitor is short circuited and the capacitor should be replaced
Restart the unit
If the fault is eliminated?
Y
N
Disconnect the terminals for the reactor and measure the resistance between the two terminals of the reactor by an ohmmeter
N
Whether there is any damage or short-circuit?
Y
Replace the reactor
Restart the unit
If the fault is eliminated?
Y
N
Replace the control panel AP1
N
Y
End

(8) Communication malfunction:(following AP1 for outdoor unit control board)

Mainly detect:

Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, If is there any damage?

Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?

The flow chart fir malfunction detect:

Start
Did the equipment operate normally before the failure occurs?
Y
N
Check the wiring of the indoor and outdoor units with reference to the wiring diagram
Is the connection right?
Y
N
Check wiring inside of the indoor and outdoor units
N
Correctly connect the corresponding wires for the indoor and outdoor units with reference to the wiring diagram
The AP1 voltage detection circuit is at fault
Y
Are wires broken?
N
If the fault is eliminated?
N
Check the communication circuit of the outdoor unit
If the fault is eliminated?
The communication circuit is abnormal
Y
Replace the main board （AP1 ） of the outdoor unit
N
If the fault is eliminated?
N
Replace the main board of the indoor unit
Y
Y
End
Y

Appendix 1: Resistance Table for Indoor and Outdoor Ambient Temperature Sensors (15K)

Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)
-19	138.1		20	18.75		59	3.848		98	1.071
-18	128.6		21	17.93		60	3.711		99	1.039
-17	121.6		22	17.14		61	3.579		100	1.009
-16	115		23	16.39		62	3.454		101	0.98
-15	108.7		24	15.68		63	3.333		102	0.952
-14	102.9		25	15		64	3.217		103	0.925
-13	97.4		26	14.36		65	3.105		104	0.898
-12	92.22		27	13.74		66	2.998		105	0.873
-11	87.35		28	13.16		67	2.896		106	0.848
-10	82.75		29	12.6		68	2.797		107	0.825
-9	78.43		30	12.07		69	2.702		108	0.802
-8	74.35		31	11.57		70	2.611		109	0.779
-7	70.5		32	11.09		71	2.523		110	0.758
-6	66.88		33	10.63		72	2.439		111	0.737
-5	63.46		34	10.2		73	2.358		112	0.717
-4	60.23		35	9.779		74	2.28		113	0.697
-3	57.18		36	9.382		75	2.206		114	0.678
-2	54.31		37	9.003		76	2.133		115	0.66
-1	51.59		38	8.642		77	2.064		116	0.642
0	49.02		39	8.297		78	1.997		117	0.625
1	46.6		40	7.967		79	1.933		118	0.608
2	44.31		41	7.653		80	1.871		119	0.592
3	42.14		42	7.352		81	1.811		120	0.577
4	40.09		43	7.065		82	1.754		121	0.561
5	38.15		44	6.791		83	1.699		122	0.547
6	36.32		45	6.529		84	1.645		123	0.532
7	34.58		46	6.278		85	1.594		124	0.519
8	32.94		47	6.038		86	1.544		125	0.505
9	31.38		48	5.809		87	1.497		126	0.492
10	29.9		49	5.589		88	1.451		127	0.48
11	28.51		50	5.379		89	1.408		128	0.467
12	27.18		51	5.197		90	1.363		129	0.456
13	25.92		52	4.986		91	1.322		130	0.444
14	24.73		53	4.802		92	1.282		131	0.433
15	23.6		54	4.625		93	1.244		132	0.422
16	22.53		55	4.456		94	1.207		133	0.412
17	21.51		56	4.294		95	1.171		134	0.401
18	20.54		57	4.139		96	1.136		135	0.391
19	19.63		58	3.99		97	1.103		136	0.382

Appendix 2: Resistance Table for Indoor and Outdoor Tube Temperature Sensor (20K)

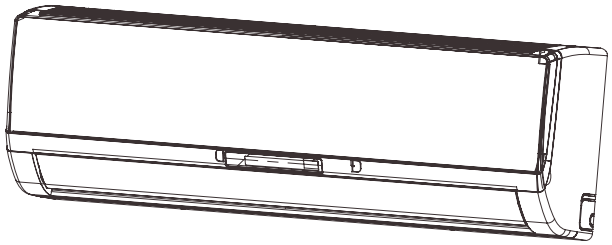
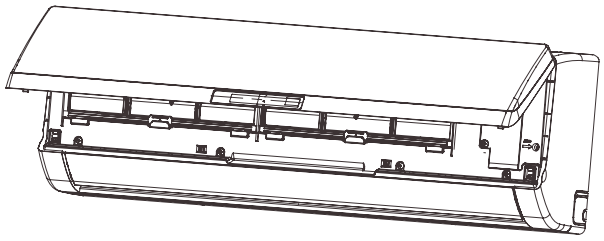
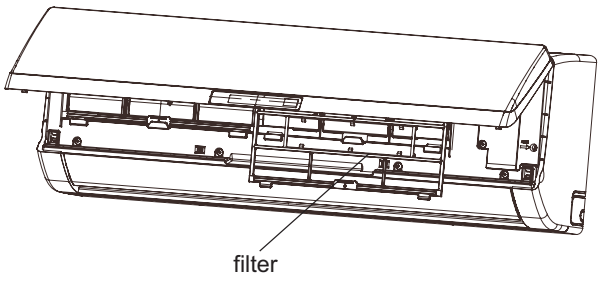
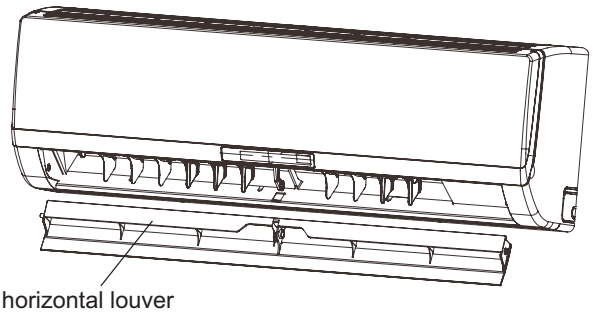
Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)		Temp(℃)	Resistance(kΩ)
-19	181.4		20	25.01		59	5.13		98	1.427
-18	171.4		21	23.9		60	4.948		99	1.386
-17	162.1		22	22.85		61	4.773		100	1.346
-16	153.3		23	21.85		62	4.605		101	1.307
-15	145		24	20.9		63	4.443		102	1.269
-14	137.2		25	20		64	4.289		103	1.233
-13	129.9		26	19.14		65	4.14		104	1.198
-12	123		27	18.13		66	3.998		105	1.164
-11	116.5		28	17.55		67	3.861		106	1.131
-10	110.3		29	16.8		68	3.729		107	1.099
-9	104.6		30	16.1		69	3.603		108	1.069
-8	99.13		31	15.43		70	3.481		109	1.039
-7	94		32	14.79		71	3.364		110	1.01
-6	89.17		33	14.18		72	3.252		111	0.983
-5	84.61		34	13.59		73	3.144		112	0.956
-4	80.31		35	13.04		74	3.04		113	0.93
-3	76.24		36	12.51		75	2.94		114	0.904
-2	72.41		37	12		76	2.844		115	0.88
-1	68.79		38	11.52		77	2.752		116	0.856
0	65.37		39	11.06		78	2.663		117	0.833
1	62.13		40	10.62		79	2.577		118	0.811
2	59.08		41	10.2		80	2.495		119	0.77
3	56.19		42	9.803		81	2.415		120	0.769
4	53.46		43	9.42		82	2.339		121	0.746
5	50.87		44	9.054		83	2.265		122	0.729
6	48.42		45	8.705		84	2.194		123	0.71
7	46.11		46	8.37		85	2.125		124	0.692
8	43.92		47	8.051		86	2.059		125	0.674
9	41.84		48	7.745		87	1.996		126	0.658
10	39.87		49	7.453		88	1.934		127	0.64
11	38.01		50	7.173		89	1.875		128	0.623
12	36.24		51	6.905		90	1.818		129	0.607
13	34.57		52	6.648		91	1.736		130	0.592
14	32.98		53	6.403		92	1.71		131	0.577
15	31.47		54	6.167		93	1.658		132	0.563
16	30.04		55	5.942		94	1.609		133	0.549
17	28.68		56	5.726		95	1.561		134	0.535
18	27.39		57	5.519		96	1.515		135	0.521
19	26.17		58	5.32		97	1.47		136	0.509

Note: The information above is for reference only.

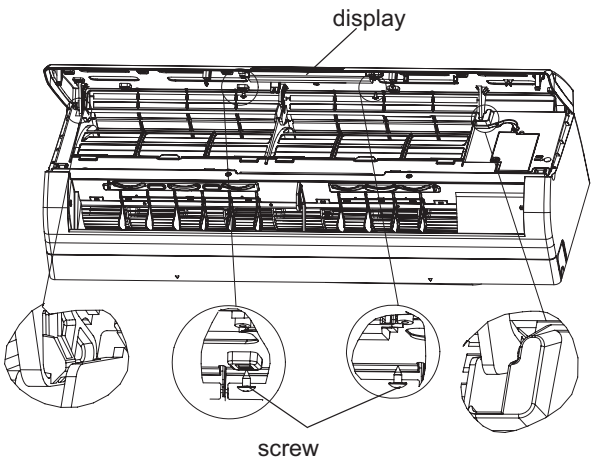
10. Removal Procedure

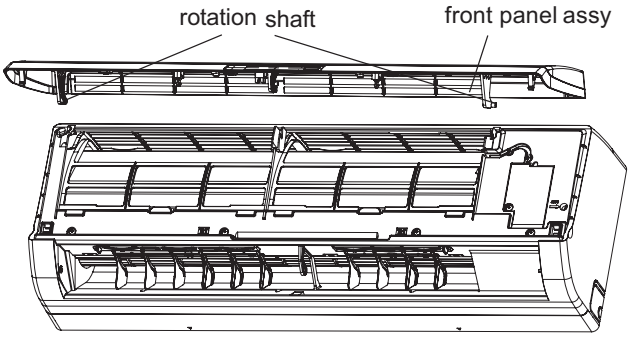
10.1 Removal Procedure of Indoor Unit

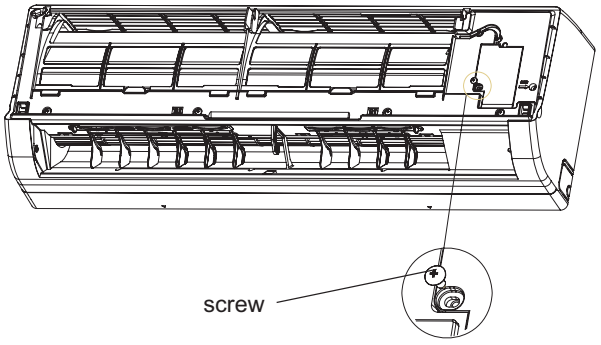
⚠ Warning Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.

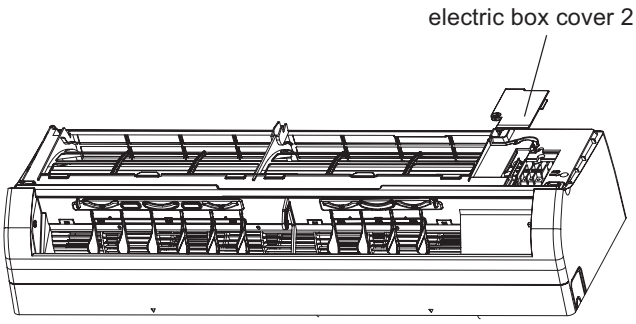
Steps	Procedure	
1. Before disassembly of the unit		
2. Remove filter and horizontal louver		
1	Open the panel.	
2	Loosen clasps on filter and then remove the filter.	
3	Remove axial bush on horizontal louver, and bend the horizontal louver slightly to remove it.	

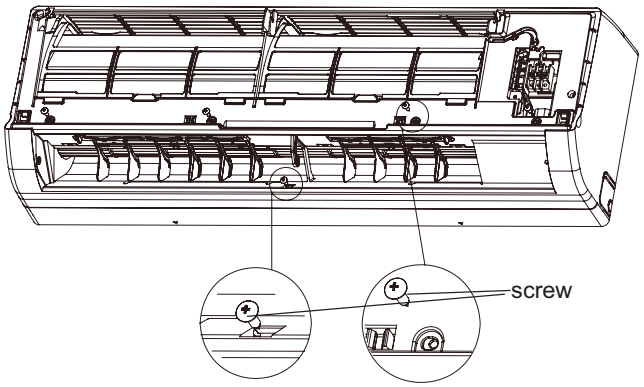
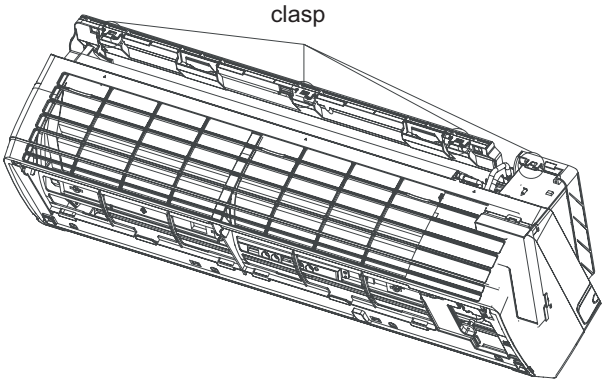
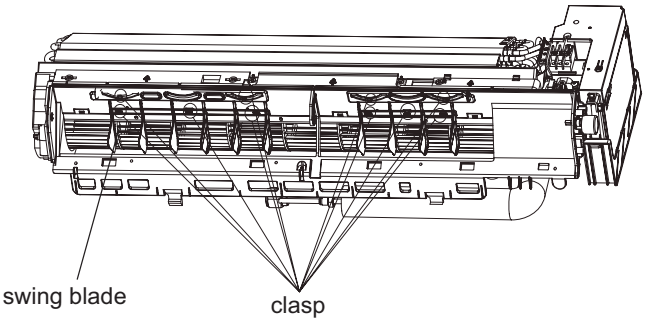
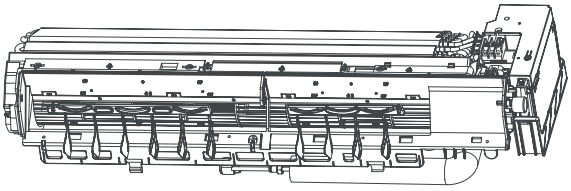
Steps	Procedure
3. Remove display and panel	
1	Remove screws on display and then remove the display.
2	Quit the rotation shaft of panel from groove, and then remove the panel.
4. Remove electric box cover 2	
	Remove screws connecting electric box cover 2 and front case, and then remove the electric box cover 2.

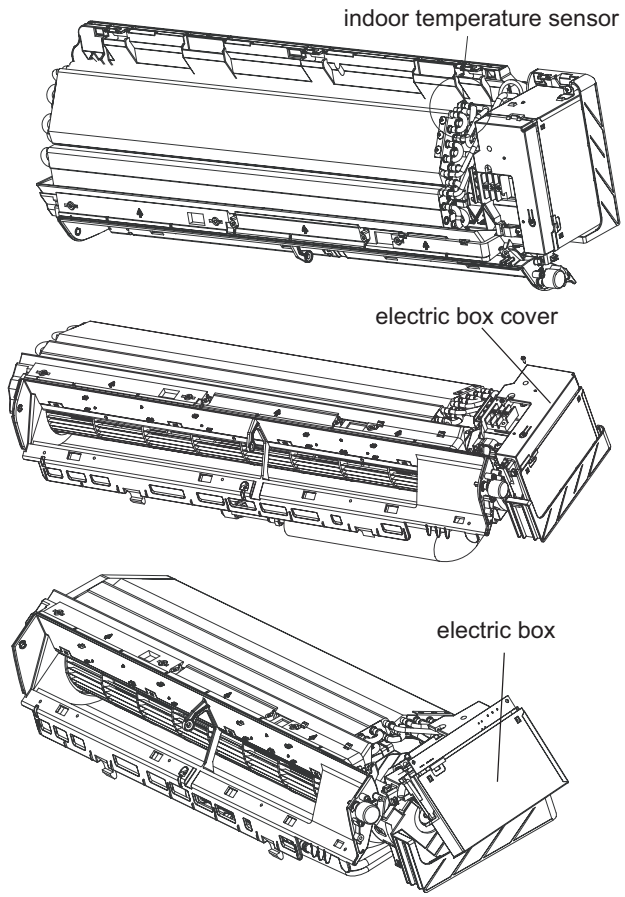
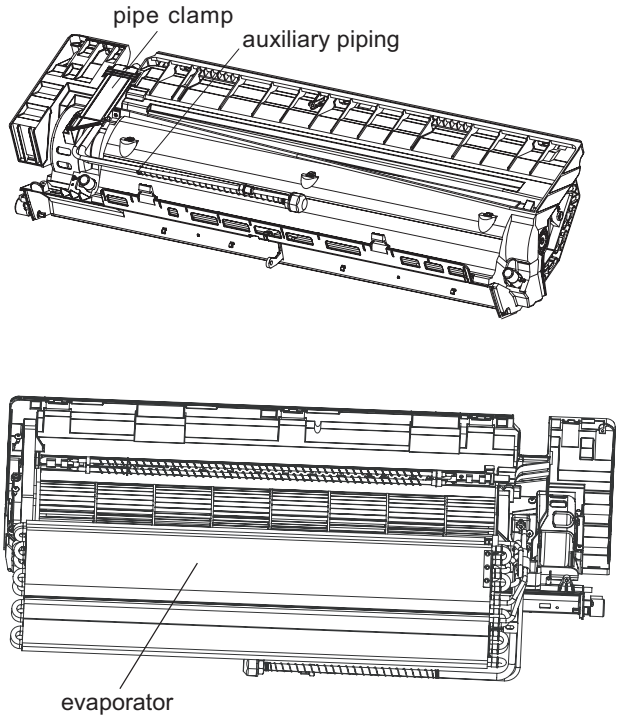




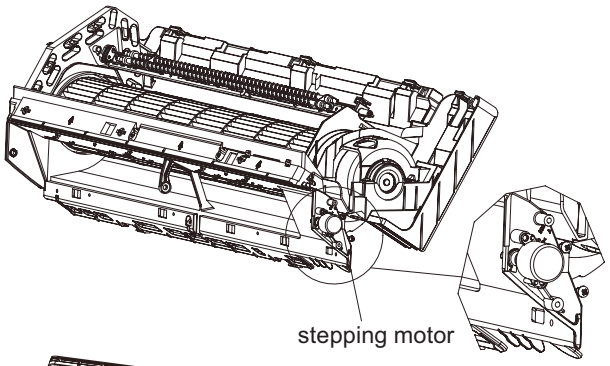


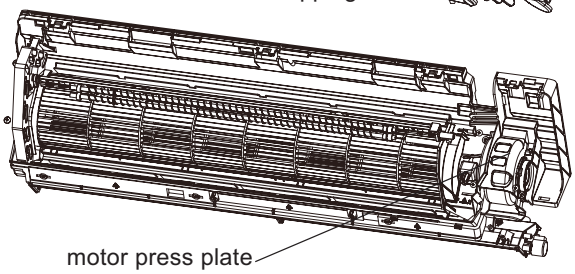


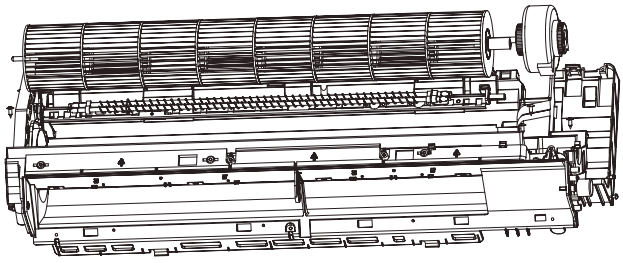
Steps	Procedure
5. Remove front case	
1 Remove screws connecting front case and bottom case.	
2 Open screw cover by hand, remove other 3 screws, loosen clasps connecting front case and bottom case and then remove the front case.	
6. Remove swing blade	
1 Remove 10 clasps connecting swing blade and bottom case.	
2 Remove swing blade.	

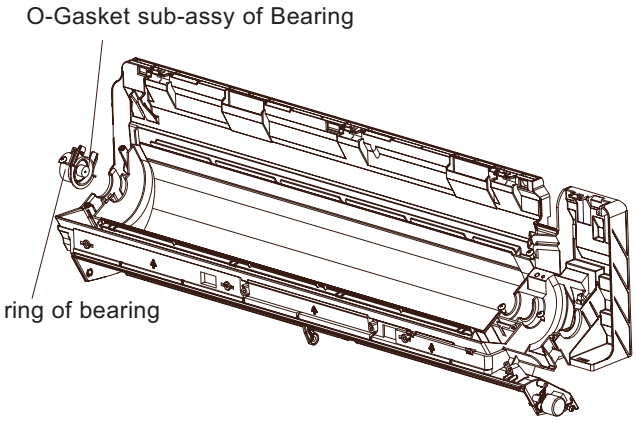
Steps	Procedure	
7. Remove electric box		
1	Pull out the indoor temperature sensor.	
2	Remove screws connecting electric box and bottom case, loosen clasps, remove screws connecting earthing wire and evaporator, and then remove the electric box.	
8. Remove evaporator		
1	Turn over bottom case, remove screws connecting pipe clamp and bottom case, loosen clasps between connecting pipe clamp and bottom case, and then remove the connecting pipe clamp.	
2	Remove screws connecting evaporator and motor press plate and bottom case, loosen clasps fixing evaporator and bottom case, adjust the pipeline and then remove the evaporator.	

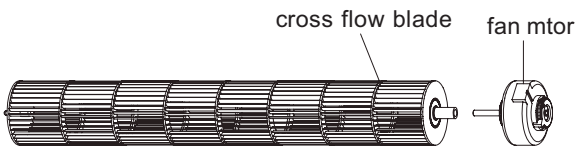
Steps	Procedure
9. Remove cross flow blade and motor	
1	Remove screws on stepping motor, and then remove the stepping motor.
2	Remove 4 screws connecting motor press plate and bottom case, and then remove motor press plate.
3	Remove cross flow blade and motor.
4	Remove shaft rubber cushion block.
5	Remove screws connecting cross flow blade and motor shaft, and then remove motor.





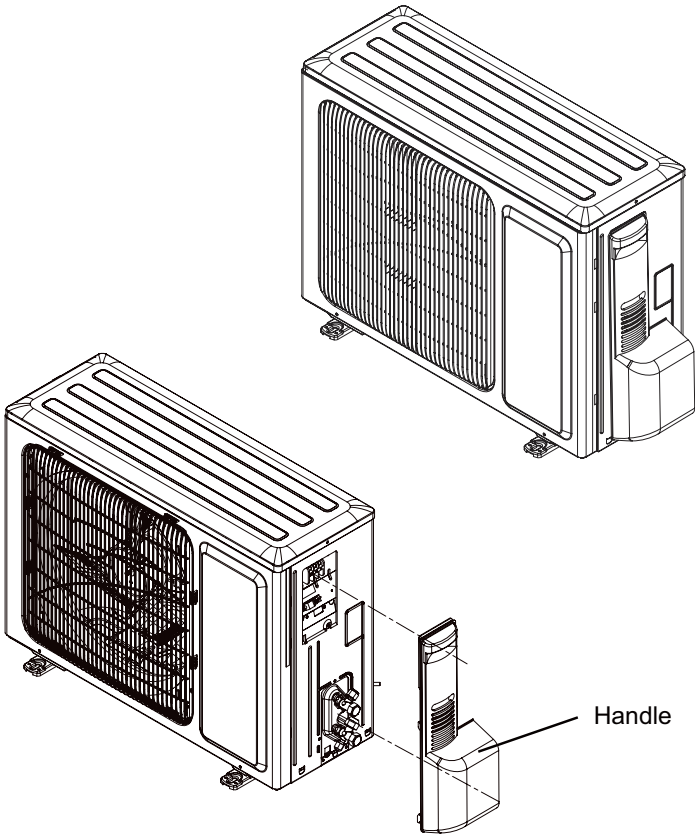
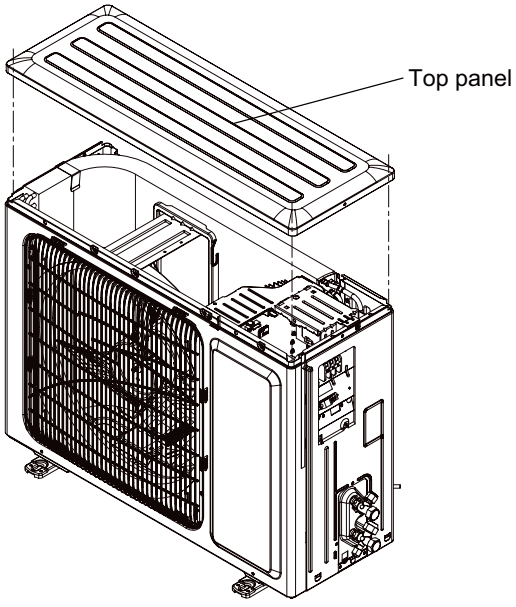


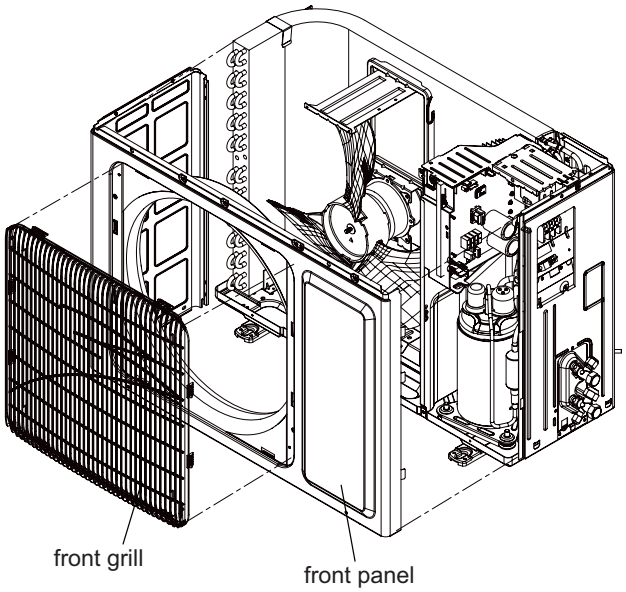
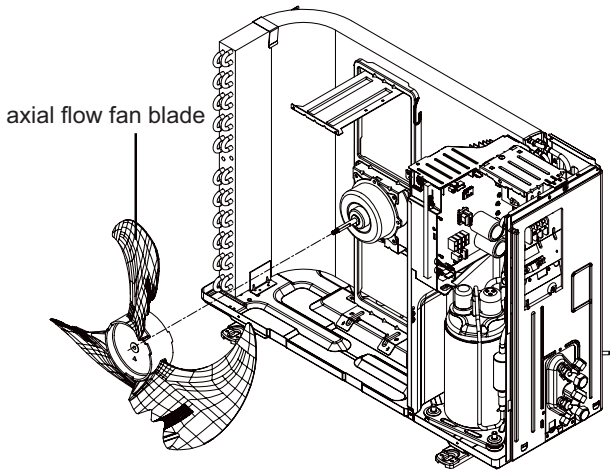
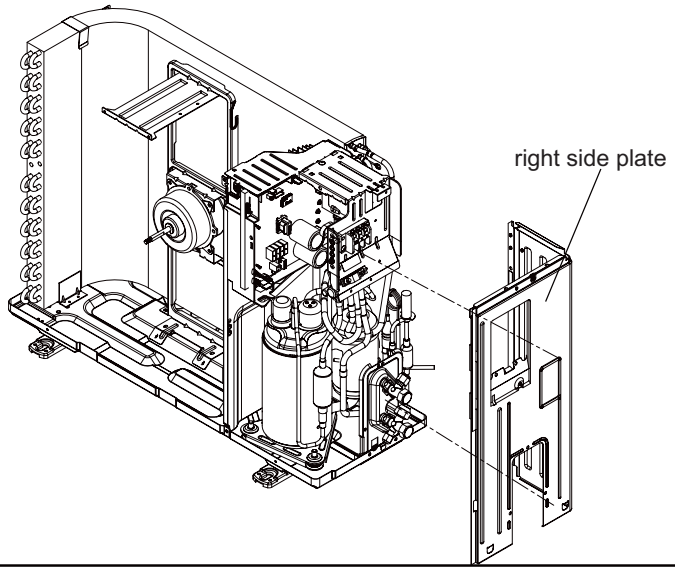


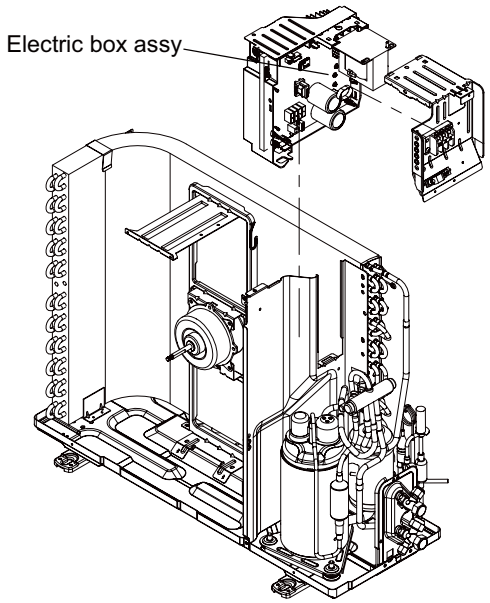
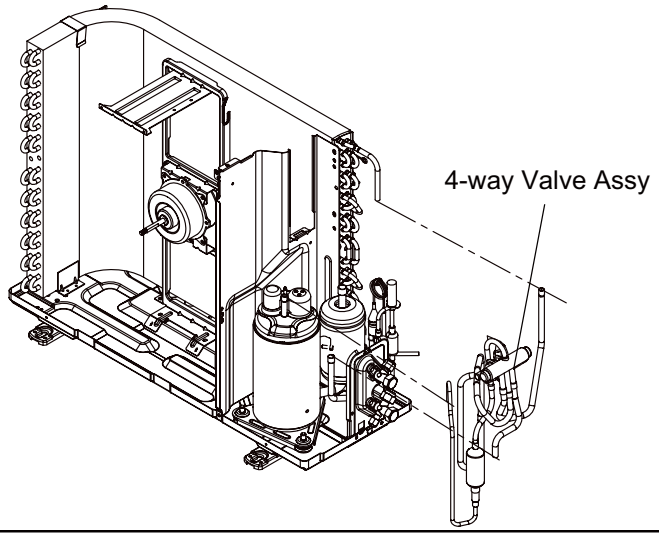
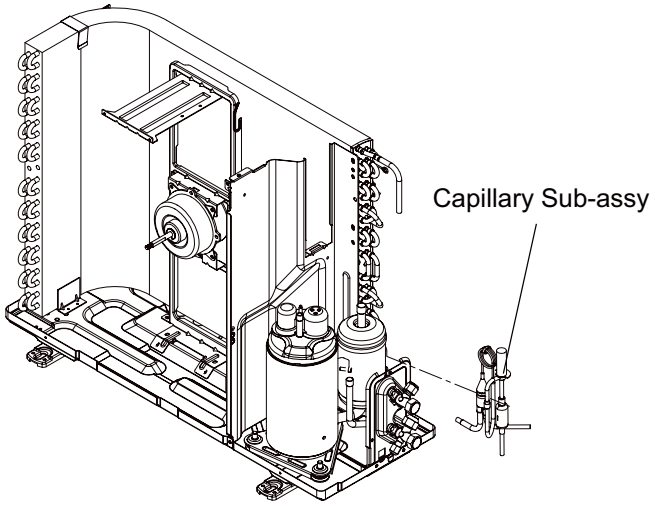


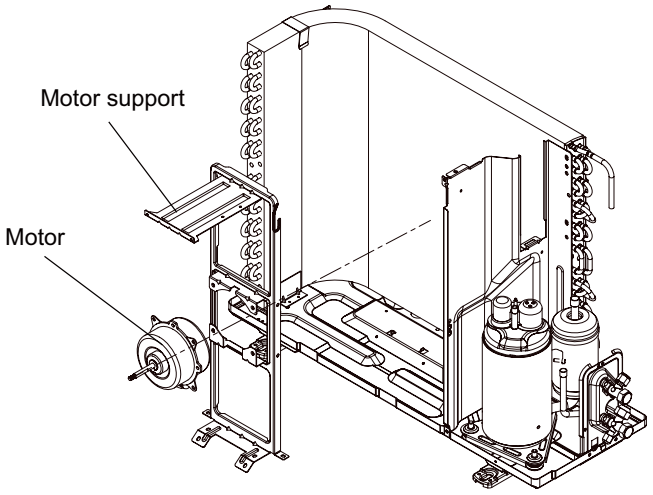
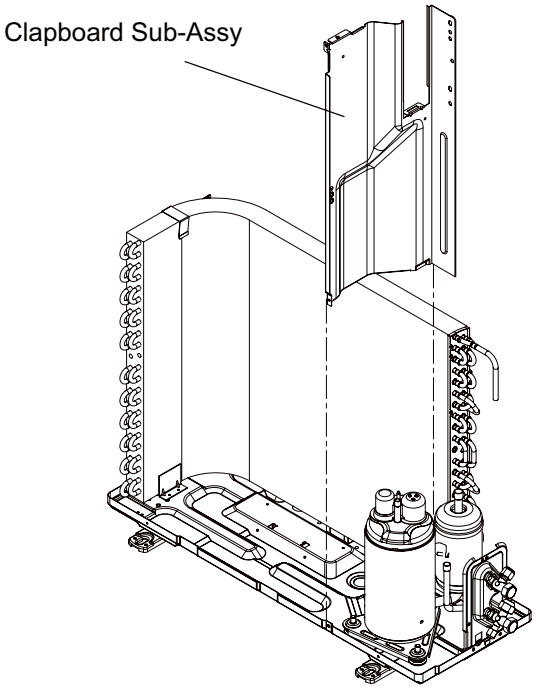
10.2 Removal Procedure of Outdoor Unit

⚠ Warning Be sure to wait for a minimum of 10 minutes after turning off all power supplies before disassembly.

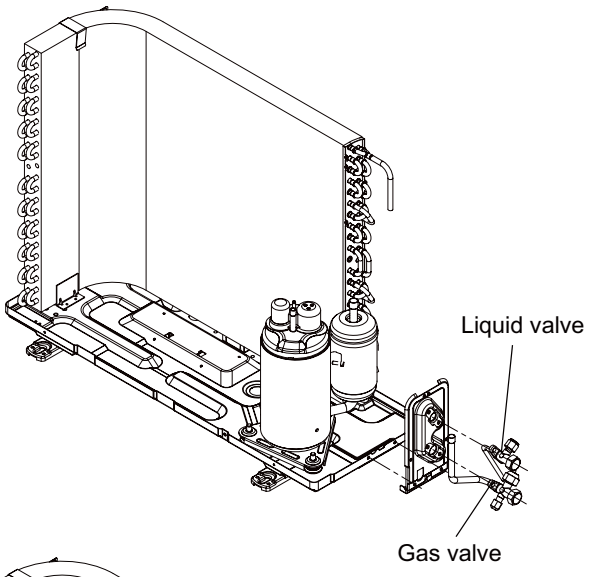
Steps	Procedure	
1. Remove big handle		
1	Before disassembly	
2	Remove 1 connection screw fixing big handleand then removethe big handle.	
2. Remove top cover plate		
	Remove 3 connection screws among top cover plate, front panel and right sideplate. Then remove top cover plate.	

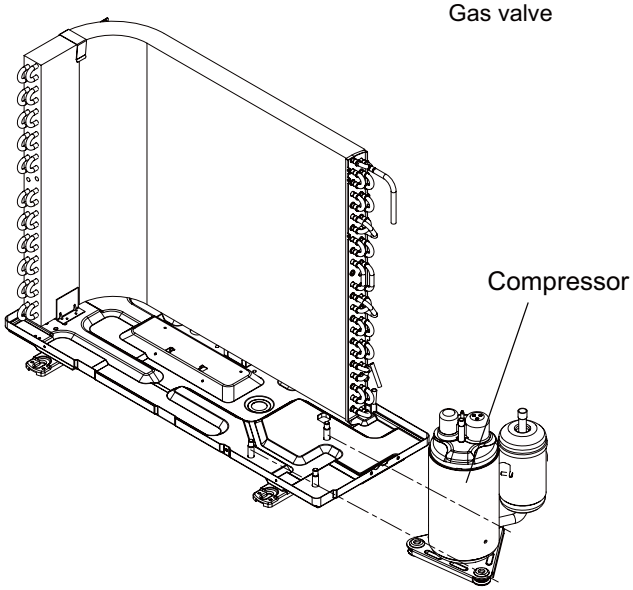
Steps	Procedure
3. Remove front grill and front panel	
1	Remove 2 connection screws between front grill and front panel. Then remove front panel.
2	Remove 5 connection screws among front panel, chassis and motor support. Then remove front panel.
4. Remove axial flow fan blade	
	Remove nut of fan blade, and then remove axial flow fan blade.
5. Remove right side plate	
	Remove 7 connection screws among right side plate, chassis, valve support and electric box.

Steps	Procedure
6. Remove electric box assy	
Remove the 2 screws fixing the cover of electric box. Lift to remove the cover. Loosen the wire and disconnect the terminal. Lift to remove the electric box assy.	
7. Disassemble 4-way Valve Assy	
Unscrew the fastening nut of the 4-way Valve Assy coil and remove the coil. Wrap the 4-way Valve Assy with wet cotton and unsolder the 4 weld spots connecting the 4-way Valve Assy to take it out.(Note: Refrigerant should be discharged firstly.) Welding process should be as quickly as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.	
8. Disassemble Capillary Sub-assy	
Unsolder weld point of capillary Sub-assy, valve and outlet pipe of condensator. Then remove the capillary Sub-assy. Do not block the capillary when unsoldering it. (Note: before unsoldering,discharge refrigerants completely)	

Steps	Procedure
9. Disassemble motor and motor support	
Remove the 4 tapping screws fixing the motor. Pull out the lead-out wire and remove the motor. Remove the 2 tapping screws fixing the motor support. Lift motor support to remove it.	
10. Disassemble Clapboard Sub-Assy	
Loosen the screws of the Clapboard Sub-Assy . The Clapboard Sub-Assy has a hook on the lower side. Lift and pull the Clapboard Sub-Assy to remove.	

Steps	Procedure
11. Disassemble Compressor	
1	Remove the 2 screws fixing the gas valve. Unsolder the welding spot connecting gas valve and air return pipe and remove the gas valve. (Note: it is necessary to warp the gas valve when unsoldering the welding spot.) Remove the 2 screws fixing liquid valve. Unsolder the welding spot connecting liquid valve and remove the liquid valve.
2	Remove the 3 footing screws of the compressor and remove the compressor.





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